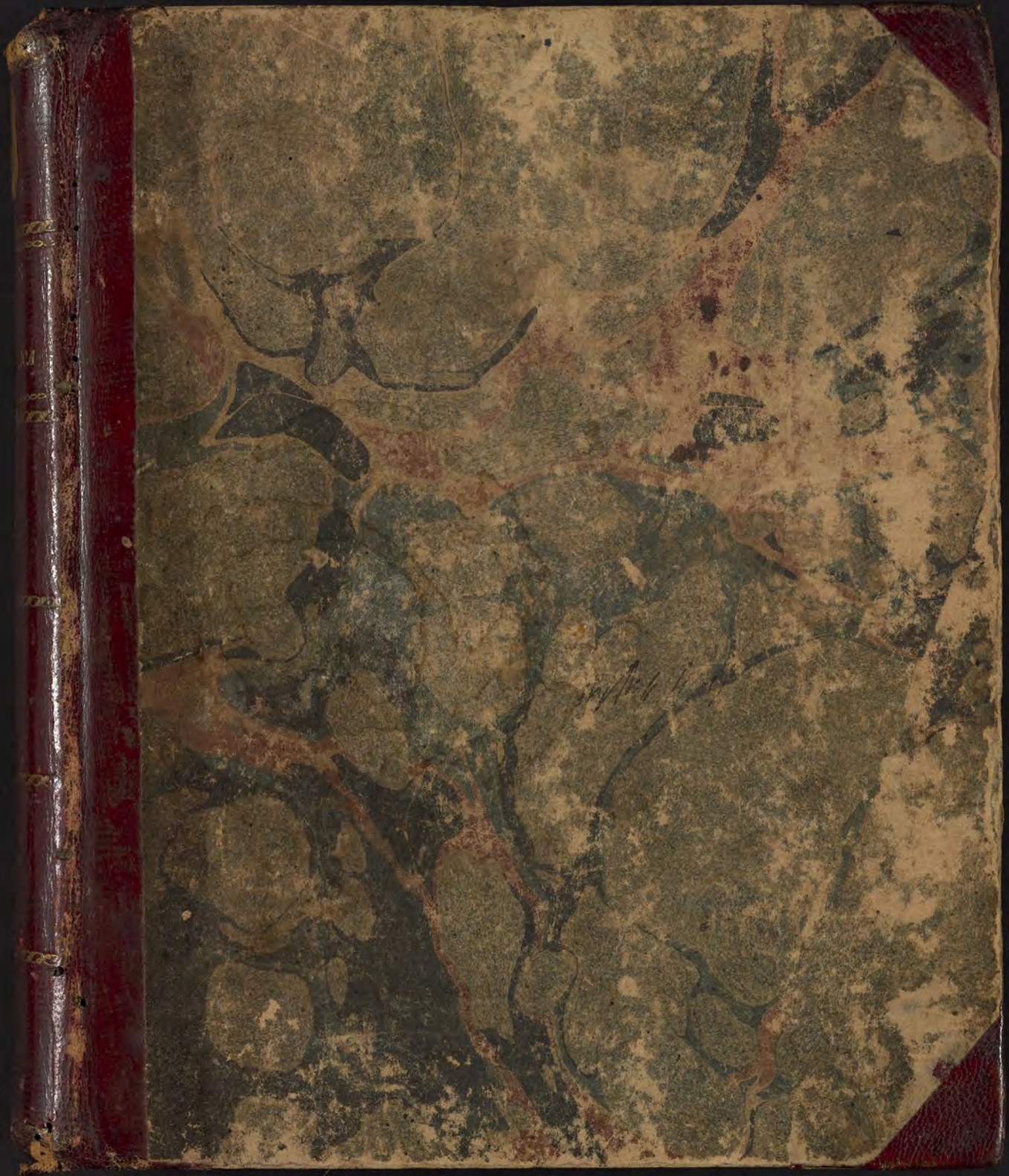

H. Lenox Hodge. M.D.

But his simplicity, his precision, his doctrine
founded on experience, that prudent philoso-
-phy, and rigid method, which observes with
care the footsteps of nature, were far from
Exciting the same degree of enthusiasm, as
the scientific pomp, and imposing Eloquence
of the two others" Dict: Cabanis —

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Lectures on Materia Medica

The Materia Medica is that Science which teaches us the Medicinal Qualities of Substances. —

Mankind was very early acquainted with the Medicinal powers of certain substances, but their acquaintance we readily conceive to be the effect of accidental observation, random trials &c — & directed perhaps by some Analogy — By these means they increased the number of Medicines, & retained those especially whose virtues experience seemed to confirm. —

Cooper was among the first who used Mercury — The Chemical Practitioners in Germany & Switzerland were held in high estimation, & employed in the different

courts perhaps as Buffoons were

Acids & Alkalies determined Physicians greatly in judging of Complaints — they supposed that one or the other abounded in the System) —

In the earlier ages of Antiquity, man sought means by wh he could alleviate disease pain & death, wh it appears to me he did intuitively — To illustrate my meaning I will refer to the Rattle snake — The young snake has no power of action while in Embryo in the Uterus of its mother in its egg — but when hatched, & while in the belly of its mother, & while its venom is not yet secreted in its Fangs, wh are then even pulpy; if touched by ripping open the belly of its mother, 'twill menace & threaten to bite without being taught by its mother. — To illustrate my meaning still further — The young duck when hatched under the dunghill hen, immediately seeks

the water without being taught, but rather discouraged by the reluctance & terror of the Hen. — Thus also the infant sucks its mothers milk without ever having previously to birth used its Organs of Mastication &c. &c.

In the 18th Century (1712) Shumach wrote first on the Mat: Med: — in 1749 Linnæus & in 1789 Cullen — —

Signatures. Paracelsus first introduced the absurd notion of Astral influence & the doctrine of Signatures. By Signatures, we mean the forms, colours, & Properties of Medicines bearing a certain relation to the diseases, affections, & Passions of the Human body — By this means it was supposed that those plants which bore any, or the least resemblance to any part of the body were perfectly efficacious in removing the diseases of such parts —

Its Origin may be traced amongst the rudest Nations — the Opinion prevails among

our Indians — Hence they say — he who eats the Flesh of the bear is sluggish — & the man who partakes of the Flesh of the Deer, is swift — & hence also they suppose that the touching a mole by their children will at some future period of their lives produce blindness, because this Animal has very small eyes.

Those plants whose leaves resemble the Liver are said to be proper for the complaints of that Viscus — those resembling the eye for Opthalmia &c — Those resembling the Lungs, the Organs of generation &c are good to preserve those parts & give them vigour &c

Hunt says Lord Bacon, to whom we are indebted for many discoveries in Science, that the Heart of an Ape worn near the heart will produce Audacity. —

In this commencement of my lectures on the Mat: Medica I think it necessary to dwell for a short time upon the means of acquiring a knowledge of this Science. These

I shall comprise under the follow^{g} heads.

I Chymical Analysis

II Botanical Affinity

III The sensible qualities of the substances employed; &

IV Experimental investigations of them

By chymical examination of the different Articles of the Mat: Med: I mean a chemical resolution of them, & a seperation of their constituent principles from one another. It has long been the opinion of Physicians that Chemistry is useful in discovering the properties of bodies — thus in many of them does it discover the presence of an acid or an Alkali —

These experiments sh^{d} not in general be considered as useful, nor am I singular in this Opinion, for it is now the prevailing Opinion among Physicians that Chymical Analysis is extremely uncertain, so that it is now pretty generally laid aside. ——

acquire

That Chymical resolution wch seperates the particles of bodies without changing their nature is more beneficial — But even this does not by any means conduct us to ascertain an accurate knowledge of their Qualities.

By this method of resolution we may find a virtue more considerable than is in the original plant, owing to its having been taken in a natural state, in combination with some other substance — & sometimes we find a virtue entirely new & fictitious — Therefore some resinous plants be found Purgative we are not to suppose they are all so — The resin of Opium is no Purge & Chemical Analysis is therefore in a great measure useless.

Six ℔s of the pure Venom of the Viper being mixed with the Nitric Acid; common air, & one third Phlogisticated air, & fixed air were produced — Theſe are very similar to the products obtained from G: Arabic —

We are not however to suppose this ve-

thod of Analysis to be entirely useless, al-
tho' the same principles are to be found in
poisonous & Esculent plants — The chemical
examination by different Menstrua is cer-
tainly useful, & has considerably improved the
Mat: Med: — Thus Laud is made by suspen-
ding Opium in Alcohol because the Resi-
nous parts are found to be insoluble in water

Mr Davy expected to Analyze Digitalis &
other Vegetables, but I shd be glad to see it

II Botanical Affinity

Altho' there is a close connection between
Mat: Med: & Botany, yet a knowledge of the
latter is not an essential requisite in the
acquirement of the former. By botanical
affinities we mean that resemblance sub-
sisting between the parts of fructification in dif-
ferent vegetables, that is, in their flowers &
fruits — Thus the common Hollyhock & the Mal-
lows considerably resemble each other in their
parts of fructification — This is the similarity of

is called Botanical Affinity. —

This method is subject to many errors, for the Night shade, Honapple, Tobacco, & Henbane are of the same Botanical affinity, but their medical properties are Spentially different

It was formerly tho't that if the Botanical affinity were the same, the medical properties must be so also —

Botanical affinity has been however of great importance in investigating the properties of plants. From it we learn the cause of the operation & powers of medicine — Almost all the 15 "Class of Linnaeus called by him "Tetradinamia" are related to each other by Botanical affinity — They are all Anti Scorbutics, have an Acid taste, & by distillation afford Vol: Alk: —

Examples of this we find in the Horseraddish, Turnip, & Scurvy grass — In these vegetables therefore there is a similitude in their properties, as well as in their Botanical

affinities. We must not however from these examples be led to suppose that the rule is an infallible one — In this respect it may be compared to the Science of Physiognomy, by which we are generally able to tell by the countenance whether a man is remarkable for the severities of his temper, or the depth of his intellect. yet in many cases we are deceived, & are sometimes led to form an idea totally different from the correct one. Some men carry with them evident marks of strength of understanding, or fertility of mind, while others again who are eminent in both of these particulars, & whose genius's may be of a superior cast to those of the generality of men, are not, if we were to judge from external appearances, superior to their fellow creatures —

Bishop Atterbury has said, that he should from his countenance have supposed that Sir I. Newton was a good man, & one of not an

inferior understand^{g}, but that he carried none of the marks of that strong, that vastly extensive genius for wh he was so pre eminently distinguished — From all the Portraits I have been able to see of the great the good D^{r} Boerhaave, I could distinguish nothing remarkable in his Countenance, nor any Characteristic of strong medical genius. — Generally however the features convey to the Spectator an accurate portrait of what lies within, tho' in some instances they may lead us into error

The same remark is applicable to plants altho' a person trusting entirely to their appearances wd not unfrequently be deceived; yet he wd generally be correct.

Examples of exception to the general rule are to be seen in different Species of the same Genus of plants — thus the Melon & the Colocinthus are two Species of the same Genus — the former is eaten & eaten in large quantities without the least inconvenience, while the

latter is violently Emetic & Cathartic

. The common Potato is of the same Genus with the Nightshade, yet it is well known to you all how different are their properties; & the former having produced faintness in 4 or 5 people is no exception to the general rule. —

By natural order of plants we mean those in wh there is a general resemblance tho' there may be particular differences — Some Writers on the Mat: Med: have classed plants according to their Botanical affinities — One of these is Dr Murray — An author who has arranged under the same Genus many vegetables wh have a similar appearance, but whose properties are extremely different — Some very violent articles he has classed along with the mildest, others wh were mild with the most active & powerful. The natural family of grapes &c are alike in their appearances resemble

each other also in their properties as Wheat Rye, Barley, Oats, Rice, Corn, Sugar &c In this succulent order is the Dorland &c is a violent poison

When I walk in the woods I see the Mullen, Tobacco, Stramonium, Digitalis, Night Shade resembling each other, or having the same assemblage of properties, I would put them in the same natural order, but their effects are very different. All these, the Mullen excepted are very active medicines, Even this is not among the mildest - It is Antiseptic & Anthelmintic, & when mixed with Meal in pills it will kill fish. It will relieve the Cough in the influenza, & will destroy worms

Vegetables are often classed together when they have the same Characteristic tho' it be in a different degree. Thus tobacco, mullen, & Nightshade strongly resemble each other, have each along with the property

of the Genus something peculiar to themselves, & wh seem to distinguish them one from another

Different parts of the same plant sometimes possess very different & even contrary qualities. Thus the leaves of the Podophyllum Peltatum are poisonous, its fruit is wholesome, & its root is Cathartic. The fruit of the Strawberry also is delicious and wholesome, & its root & leaves strongly Astringent. — Opium may be collected from every part of the Poppy, but the seeds afford a mild oil proper for Culinary purposes — while the seeds of the Henbane wh are exactly similar in appearance, yields an Oil very Poisonous. —

Climate also alters the Virtues of plants — The Sweet Gum in Carolina & Georgia exists in its full vigour, while here at N. York it scarcely deserves the name. It yields a greater proportion of Gum Resin to the

Southward than Northward, in exact Ratio.

The Savvy grass affords less Ammonia in warm than in Cold Climates. On the rocks of Greenland it is scarcely acid, in fact I believe it differs in its Chymical Composition.

Even the Cabbages we are raised in our City, the common kitchen maids can tell you are stronger than those in the Neck. —

From what has been said we perceive that Botanical Affinity has been of considerable use, in acquiring a knowledge of the Medicinal Virtues of plants, but affords no certain Criterion as we have seen — This knowledge can be taught with certainty by experience alone. —

III d The Sensible Qualities of Plants. —

By their Sensible qualities we mean the Colour, Taste, & Smell. This is applicable either to the Animal, vegetable, or Mineral

If two bodies resemble each other in their appearances taste & smell we shd naturally conclude their properties to be the same This method naturalists have always adopted, & doubtless it has laid the foundation for a large portion of Medical knowledge

Taste & Smell. Parsley & Celery, the Ancients considered for this circumstance possessed the same virtues. We find that the Indians of our country will always taste & smell a vegetable, before they will give an opinion of its nature — The sense of smell is that we appear to direct Quadrupeds, & particularly the wild in the choice of their food, & of course they must be in this respect superior to mankind — as savages are to Civilized Citizens — And even Domesticated Animals are much inferior to wild in the choice of their food, for the Olfactories of the latter being more acute — Horses we have been accustomed to drink water in the upper

part of this City, wd not for some time drink the Hydrant water in the lower part of the City, altho the difference is not discoverable to men. —

Dr Cullen gives it as a general rule that those substances wh dont affect the Taste or Smell, or exert but an inconsiderable effect on them, are inert & useless. This as a general rule may hold good, but there are several important & striking exceptions — for some of the most powerful plants are nearly destitute of Both. —

The Poison of the Viper according to the experiments of the Abbe Fontana, is insipid & inodorous, conveying no taste but that of Consistence, viscosity, & like pure Spring water. This if it be correct, wd be a remarkable instance to prove the impropriety of admitting Dr Cullens rule. I am convinced however from my own experience that Fontana must have been mistaken in his experiment

* lips, gums + Palate — In half a minute,
there was a peculiar burning sensation
on the lips tongue + fauces, wh extended to

for his veracity I believe is unquestionable.
In the Spring of 1802 I procured a large quantity of this Venom, & in the presence of several very respectable Physicians, & my own Pupils, I applied the pure undilated Venom of the Rattle Snake to my tongue & fauces * & extended to the upper part of the Trachea & Larynx, together with a great flushing of the face. This disagreeable sensation was not dissipated for nearly the whole day, altho' I repeatedly washed my mouth with warm water in order to cleanse it. This was a complete proof of the fallacy of Fontana's experiments. But not contented with this alone, I gave a portion of the Venom to Rabbits, & speedily destroyed them. After this unequivocal proof that I had not been mistaken as to the Venom itself, I hesitate not to say that the Abbe must have been misled. It is probable that he employed some of that mucilaginous matter & both the Viper &

the Rattle Snake have the power of ejecting in considerable quantities, & wh in appearance is similar to the poison. — The Taste of the Venom appeared to me like that of the Indian Turnip, an infusion of wh may be injected in considerable quantities into the Blood vessels with impunity, whereas a single drop of the Venom mixed with the Blood will be sufficient to destroy life

The Ticoonas of So America is however a proof of the Fallacy of Dr Cullen's position, this wh is the produce of different species of plants gives out no smell, & tastes like the finest Liquorice, yet it is a most deadly poison. —

Some Authors on the Mat: Med: have arranged the Articles agreable to their taste & smell & affirming that a similar taste & smell in different Vegetables will be the consequence of similar Med: properties. The Lobelia & Tobacco fa-

vour this idea, yet the assertion is incorrect — besides it is extremely difficult to distinguish the different tastes — We may indeed easily discern the Acids, the Astringents, the Sweets the Styptic &c but there are many other tastes wch cannot be comprehended under these Many tastes wch are disagreeable, but wch contain also something wch is peculiar to each —

Odours have also been thot useful & necessary in ascertaining the properties of plants — The better & pungent Odours are distinguishable

There appears to be an Idiosyncrasy in the Sense of Smelling — That species of grass (the Anthoxanthum Odoratum) wch communicates the delightful odour so familiar to all, was designated by Mr Bartram, his son, & the whole family, (near this city) by the strong epithet of Stinking grass

Odours do not assist with certainty in determining the properties of plants, for the

smell of Opium & Chocolate are nearly the same. The bitter from Digitalis being to this sense more pure & feeble wd be employed in Dyspepsia in preference to Opium wh gives out a stronger bitter. —

Odours certainly give a very uncertain indication of the properties of Minerals — Neutral Salts, Calomel, & Tart Emetic communicate no smell, & even Arsenic Only communicates the smell of Garlic, a substance we all know to be wholesome & nourishing. —

Colour according to Linnæus, gives an important indication of the properties of plants. The Swedish Naturalist observes I. That the sickly Pale colour proves the insipidity of the Plant; for say they Celery when Blanched is more insipid, less stimulating, diuretic & narcotic than

when green. White leaves are also less poisonous than green —

II The Green colour indicates the Crude state of a plant. This is only applicable to fruits for many plants when green have an acid taste. —

III d " The Yellow Colour indicates a bitter. This is generally correct

IV The Red indicates the presence of acidity. This is probable —

V That white is sweet. There is however more sugar in a red, than white beet.

VI That the black colour indicates something disagreeable, as the Solanum

These colours as to giving indications are far from being unerring guides. Yet they may be sometimes applicable, & are certainly worthy of attention. I wd recommend you to recollect Linnaeus's opinions when walking in the woods, or any other place where you meet with plants & flowers

IV Of Experience.

An experience of the effects of substances on the human living body, is certainly the only sure means of ascertaining their medical virtues, but the employment of this experience is extremely fallacious & uncertain. — Writers on this subject abound with many false conclusions, wh are nevertheless supposed to be drawn fm experience. — I am not inclined to pursue this subject with minuteness, as it must be obvious to all that experience itself must have its errors. Dr Cullen treats largely & I think properly on this subject — I therefore recommend a perusal of his Opinions. —

Arrangement.

We now proceed to treat of the most proper plan or arrangemt for a course of lectures on the Mat: Med: Every writer has followed a plan peculiar to himself —

The first Writers preserves an Alphabetical order or plan Dr Boerhaave in the 18th Century throwd great light on the Mat: Med: he adopted an arrangemt of his own of the Botanical System. —

The Sexual System of Linnæus is not sufficiently accurate — His 15th "Class" Tetradinamia" contains plants of opposite qualities — The 5th Retandria is also defective The 6th Hexandria is incorrect inasmuch as he classes under this, the Rice Asparagus, Pine Apple, Garlic & Aloes. — Under the 14th class Didinamia he associates Digitalis with Rosemary, & the Chocolate with Gamboge

Dr Murray associates Vegetables accord-

ing to their Botanical affinity – He arran-
ges the Sponge, Cascarilla, Ricinus com-
munis, Tea, Beet, Poke, & Rhubarb, under
one Class. – This arrangemt is certainly
very deficient, for plants possessing differ-
ent qualities, are arranged under the same
natural order, as the Squill, the Onion, Gar-
lic, White Hellebore, Asparagus & Pine Apple

We next treat of some arrangemt
of the Physiological kind. –

Almost all nations have acquired some
knowledge of Anatomy – hence we find that
attempts have been made to arrange
medicines accordg to the different parts
of the body wch they were supposed most
particularly to affect. Linnaeus seems to have
had an eye to the Physiological divisions
of the body in his arrangemt –

I His Nervantia or Nervine Medicines
II Muscularia &
III Viscerantia or Visceral –

The

The first act upon the Nerves - the 2d on the Muscles, & the 3d On the Viscera

1 To relax the tone of the muscular fibres

2d To roborate the tone of the System

3d To abstergo the System & fibres. —

There are according to Linnæus 5 orders of Medicines such as comfort the Head, the Heart, the Liver, Spleen, Lungs, & such as promote Venery. —

The Genius of Linnæus erred very much when he made the above division. The human body is a System divided into many subordinate ones. Man is compounded of Vital Organs whose properties are peculiar to themselves, & the life of the system is composed of the life of these different parts.

Linnæus has however had many Copyists. From this system a new arrangement has been proposed.

Burdon comprizes in his arrangement Organs peculiar to themselves. These

act ful & repose at different times. He has subordinate systems peculiar to themselves, or rather possessing habits peculiar

There are no Articles yet discovered wh act specifically on the Liver, Spleen, & such particular parts -, yet certain however it is that many articles affect some parts in preference to others. It wd be better if the term Specific were entirely banished Our Books & Conversation, as conveying no definite meaning - I wd substitute Idiopathic in its place. By Idiopathic medicines we mean those articles wh excite a very remarkable effect on some part or organs in preference to others as Sacch: Sat: on the B: vessels in stopping hemorrhages &c

Dr Darwin has divided Med: into seven Classes

I Order Nutrientia - This we retain
II " Incitantia — Do
III " Secrementia, This we break

IV " Sorbentia — Do

V " Inventantia — Do

VI " Reventantia — Do

VII " Torpentia — Foolish.

To the first order Nutrientia belong all the different kinds of Aliment

To the 2d Order or Incitantia, belong Opium Stramonium, Elder, Oxygen gas, Love, Anger &c

The 3d Order, Secernantia includes Diuretics, Cathartics, Sialagogues, Aloes, Clysters, Vol: Salts, Emetines, Grief, Joy &c — The Secernantia increase the irritating motions as by Secretion &c — This is a most extensive class indeed, for it includes almost all the Articles of the Mat Med as all increase the glandular secretions — He might have stopt at this single division. —

The 4th Order, Sorbentia includes, Blue-vitriol, Bark, Emetics, Cathartics, Acid vegtables, Mustard, Rhubarb, Mercury, Galls, & all those Articles that increase the irritating mo-

tions that cause absorption

To the 5th Order or Inventantia, belong all the different Cathartics that invert the intestines & Lymphatics, & revert the natural order of successive irritating motions. —

Under the 6th Class Revententia he includes those Medicines that restore the natural order of reverted motions, or rather inverted irritating motions, as Anti Spasmodics. —

He includes under the 7th Order, or Torpentia, all the class of Sedatives — Under this head he arranges Veal broth, Carbonic Acid, Carolina pink root &c — A most astonishing absurdity! for who ever found Veal broth a Sedative?

As to the Alphabetical Arrangement, it serves the indolent & senseless Physician for it is no more than a Dictionary

Dr Cullens arrangement is superior in many respects to most others, tho' not entirely Original — Much of it is borrowed

fm Simmons — Nor is the plan wch I shall pursue in my subsequent Lectures perfectly new — I shall not pursue the Botanical arrangement — I shall frequently follow that of Dr Cullen, but often deviate fm it. — I shall add Antilithics, Anthelmintics, & Topical Stimulants. —

The Materia Medica is divided into two great heads or branches

I The Materia Medica properly so called, or that wch compounds Medicines —

II Materia Alimentaria, wch includes aliments or food. —

This is the plan wch I shall pursue & shall commence with the latter branch

Materia Alimentaria.

Writers on the Mat Med: have in general paid too little attention to this part of their Science, a circumstance greatly to be regretted. Dr Cullen's work is highly praiseworthy in this respect, but he has notwithstanding innumerable errors —

I design to pay considerable attention to this subject, & shall treat

I Of the Salutary & pernicious Effects of different Aliments —

II Their influence in producing diseases

III Their effects on the Passions.

By aliments we mean those substances w^h are capable of supplying the Solid & Fluid matters of the body. — They are distinguished as they are easy or difficult of digestion, & also according to the Nutriment w^h they afford.

Dr Cullen is of Opinion that the be-

getable matter fit to form an Animal fluid must contain an Acid Oil & Sugar - This idea is original with him. tho' not quite in conformity to the doctrine of Chemistry - there is some foundation however for this Opinion -

1st Of Acid. -

The Substance of this theory is as follows - Man consumes many kinds of Vegetables matter, of all of an acid is an ingredient but more particularly of vegetable fruits - In these it is commonly combined with more or less Sugar - This acid is frequently converted into Sugar, & is therefore Nutritious. -

He also thinks that all the variety of Vegetable matter, except the Oily undergoes an acescent fermentation in the Stomach. This acid afterwards disappears, & cannot be detected in the blood - it must therefore combine with Animal fluid. -

He thinks also that without acids, the Animal fluids advance towards a putrescent state

Yeas also of opinion

such a state as he thot Scurvy to consist in, & therefore he concludes that this disease is to be cured by acids —

D^r Cullen further asserts. that ~~fossil~~ vegetable acids form a necessary & proper part of human Aliment. This is however certainly erroneous. —

D^r Cullen asserts further that fossil acids do not enter into the composition of Animal fluids — This is bad Physiology & pernicious Pathology — the diluted Elixir of Vitriol may be taken without its presence being detected in the blood, but it does not pass unchanged thro' the body as D^r Cullen asserts — & their irritating effects is no proof that these acids remain seperate, for this arises from the salts which they contain. That they undergo some change or other is proved by their curing Scurvy as well as the vegetable acids therefore the medical properties is not confined to the vegetable acids as he asserts. — D^r Cullen has given no

proof that the fossil acids do not cure Scurvy

Of the acids that Dr Cullen has mentioned some are more nutritious than others — as the Phosphoric & Benzoic acids. The acid of Borax & amber we can say nothing of —

Vegetables more over are not necessary to the existence of the human body — there are whole nations who live solely on Animal food. —

The inhabitants of that part of Africa near Orange River, subsist entirely on Seals, & other animal flesh, yet Scurvy is unknown among them — they may use Aromatics, but these we cannot place among Vegetables — Three Centuries ago, the inhabitants of G. Britain subsisted entirely on Animal food for 6 months in the year without ever having the Scurvy among them. —

Another assertion of Dr Cullens is that Acetous fermentation takes place in digestion & that the digestion of Vegetable matters is

owing to this Fermentation. Spallanzani & Hunter have shewn that digestion depends on the Gastric juice clearly refuting the Opinion of the Edinburgh Professor. By putting substances in a bag & heating them to 96° (the heat of the Stomach) Saccharine, Acetous, & Vinous takes place, & putrifying, the Vinegar is converted into Mucilage. — This however is not a fair experiment —

An acid is formed in the Gout — and we often reject it by vomiting being mixed with a Vegetable matter, forming a Neutral Salt or Sal Diureticus — We then apert that an acid is not necessary to the function of Digestion —

D Fordyce having given meat to a dog, in 4 hours afterwards killed him; & could discover no acid whatever in the Duodenum

A dog & had eaten bread was also killed by the same Author, & the test of violets was insufficient to detect the presence of an Acid

This however was effected by the test of the red cherry juice - He properly recollecting that bread was not the proper food of a dog as it is a Carniverous Animal, repeated the experiment on Sheep & Cows, but could never detect the presence of an Acid in them.

Dr Bland, an American, laid the foundation of the present system of digestion, as it is opposed to Fermentation. It was in his Inaugural Essay published at Edinburgh Probably Spallanzani never saw this piece, but certain it is Dr Bland can claim the right of priority

The flesh dissolved by Saliva without Fermentation, & vomits taken after a meal never discovering acids are a few of the many proofs as might be adduced. Acids have never been discovered in Rabbits notwithstanding many experiments have been made on them for that purpose. —

In both Carniverous & Herbiverous

animals then, digestion is accomplished by solution without the acetous or any fermentation whatever. The Phosphoric Acid does exist at times in the Stomach fm the Gastric juice - but its existence is a proof of morbidity - Carbonic Acid, Gaseous Oxyd of Carbon, & sulphurated Hydrogen gas, are all emitted in disease - Once attended a child where there was a Strong smell of Phosphorus emitted fm its breath - the same was also evident in the secretions - Its appetite was Canine, & the Phosphoric acid arose fm the bread wch was ate in larg quantities - In this case the Saliva & Gastric juice was not able to dissolve it into a pulpy mass, & the process of digestion was not able to convey the Phosphorus to the bones - Consequently they became flexible

The process of Digestion appears very simple to the favourers of Dr Cullens Opinion - Chymical Physiologists have been too apt

to consider the living Stomach the same as a lifeless vessel; & the same remark will apply to the Mechanical Physiologists. But it is unsafe to reason concerning Physiology from our knowledge out of the body

Digestion cannot go on in the dead as in the living body; this is found by killing Animals or Opening men soon after a meal, for the aliment appears nearly the same as when Swallowed. The Gastric Juice in producing a Solution of food does not afford finished Chyle, for digestion is not completed in the Stomach. It is finished chiefly in the small intestines — Nor does it appear to be carried clean thro' the Circulation; & those Conglobate glands to prevent it or after it may be considered as Appendages to the Digestive System.

The Nature & Composition of proper Aliments, & their good & bad effects when employed in our diet will next be

considered

We have already mentioned the 3 principles of Dr Cullen thot necessary to constitute Nutritious Aliment viz Acid Oil & Sugar — Of the Acid we have already treated, & also mentioned that his Opinion on this subject, arose from his notion of Digestion We have denied that Fermentation is accomplished in the Stomach. & asserted that when it does occur, it arises from digestion going on improperly, or from improper Aliment. —

Digestion is not accomplished solely by Solution, as it is not finished but only begun in the Stomach — The Gastric juice dissolves the Aliment & causes Solution — But the Chyliferous procefs does not begin, or in other words there is scarcely any chyle found in the Stomach. If a ligature be tied round the Duodenum we find the Lacteals situated there, much swollen, yet from the Lacteals we can procure no chyle. In Oppos-

tion to Dr Fordyce, I think that Chylification is not confined to the Small intestines but extends thro' the whole tract of Intestines

VII.d Sugar. —

This is the second kind of Vegetable matter necessary to the production of an Animal fluid accord.g to Dr Cullen. — As a proof of its Nutritive qualities we know that the Negroes in the W: Indies grow fat at the time of Cutting the Sugar cane, & making sugar

In treating of Sugar as an Aliment we shall

1 Speak of those Articles into wh.ch Sugar enters as an ingredient

2.d Exhibit more direct proofs of the Nutritive qualities of Sugar alone. —

First — We shall, as specified treat of those substances into wh.ch Sugar enters as an ingredient —

We know that the inhabitants of hot climates subsist chiefly on fruits into wch Sugar enters as a chief ingredient. Dates for instance is a fruit wch we know to be Nutritious on acct of the sugar wch they contain, & these are the only support of whole nations. The Fig, into the composition of wch a large quantity of Sugar enters, is next to the Date. — These are the best examples of the Nutrition wch those plants containing Sugar afford. The Indians appear to be well acquainted with the Nutritious qualities of Sugar or Honey, for in undertaking long journies, they make their meals by means of honey formed into a Paste, wch supports them thro' their excessive fatigue. —

Those Vegables or roots remarkable for their Nutritious Qualities contain a great deal of Sugar — for instance the Beet

Every species of farinaceous matter contains a large quantity of Saccharine sub-

stance — It is evolved during germination — the affinity between Saccharine & Farinaceous matter is proved by germination & Maceration

All leguminous seeds likewise contain sugar — The young pea is more pleasant to the taste & nutritious to the Stomach than the old, owing to the greater quantity of Saccharine matter wh it contains — The seeds of wheat, Rye, Barley &c contain a Considerable quantity of Sugar

2° We come next to consider the Nutritious nature of Sugar alone by more direct experiments —

An old man says Dr Boerhaave who ate as much Sugar on his bread & butter, as the butter wd contain, sweetened his ale and beer with it, & employed it as his chief Article of diet, lived to the advanced age of 99 years or 100, & died of a Plethora. —

Dr Murray says that Sugar in its saline

Hate is not nutritious. — M^r Jn^o Hunter was so fully acquainted with the Nutritious qualities of Sugar that he uniformly recommended it as a restorative where the System was much debilitated or reduced, from the Venᵉ or any other Cause. —

A Gent: in Lancaster who had been considerably reduced by Sickness, on eating a quantity of Sugar daily with his bread, acquired an unusual bulk. To many Animals Sugar is very deleterious; but to the larger Quadrupeds it is surprizingly fattening. — D^r Rush says 6 ℔ of Sugar will support a horse in the W Indies during the labour of a whole day. —

The Antiseptic property of Sugar is proved by many facts. A solution of it will preserve Venison, Veal, Mutton &c — even the white of an Egg, or blood itself. The Ancients preserved dead bodies in honey, & this practice still prevails in some Countries. —

It is said that the Scurvy is rare among the East Indians who eat much Sugar, Hence it is recommended in this Complaint. We know however that a constant vegetable diet has, & will produce the Scurvy —

Sir Jas Pringle says that Plagues are unknown in Countries where much Sugar is consumed — Unfortunately however for this theory, we find the Y: Fever (a disease certainly nearly allied to the Plague) existing in the W Indies. — Dr Smith of New york, & Miss Beck & Prescot of this City confined themselves during the prevalence of the Y: Fever to a Vegetable diet (wh certainly contains much sugar) but instead of acting as a Prophylactic, they were among some of the earliest victims of that disease, & were affected with unusual violence

It has also been asserted by Cullen that Malignt fevers are not so common now as formerly owing to the greater proportion of

vegetables & Saccharine matters used in modern times — This is certainly a Mistake —
Leprosy has disappeared from Countries in wh no change has taken place as to a vegetable diet & Leprosy also prevails in Countries, the inhabitants of wh subsist chiefly on vegetables. This problem is not difficult of solution, for the quantity of perspiration becoming smaller, the skin becomes dry & scaly. Dr Stark found that a diet of sugar alone enabled him to drink no more than 2 pints of liquid a day —
When he confined himself to bread 3 pints & ½ was as little as he could do with — After living on sugar for 2 weeks, his gums swelled & bled, & it produced something like Scurvy.

Sugar has an immense range thro' the vegetable world — it perhaps exists in all vegetables — It is said that Fungus plants as Mushrooms contain No sugar — but Baron Humboldt extracted sugar from them — The comparatively small quantity of sugar wh —

they contain may arise fm the want of light (they growing chiefly in Caverns & shady places) wh is a powerful agent but not absolutely necessary. Dr Fordyce observes that Mosses, & Sea weeds contain no Sugar But it has been extracted fm the Sea weed — Sugar has been obtained fm the grapes, Aloes, Cocoa nuts &c. —

To extract Sugar fm plants, take the Annual plants in a growing state, & the Perennial during the time of its shooting — Mix the Saccharine liquor obtained fm them by Distillation, with lime, heat it to 234° & Crystals of Sugar will be produced — If this be not successful try the process with the lime again

In Java, Sugar is obtained fm the Palm tree. In Hindostan fm the Cocoa nut — the Pine the white Birch, the Aloes, & plants nearly allied, all yield Sugar — the Hickory also — the Indians make it fm

chips when the Sap runs — The Indian Corn, during the Revolution a great quantity of Molasses was obtained in this way. The Parsnip, the Carrot, the Parsley, & the Button wood, all yeild Sugar. —

Sugar exits in Animal as well as Vegetable Substances — Honey partakes both of the Animal as well as the Vegetable Substance. Exists in Milk &c & probably it exists in the blood. Dr Willis was the first who observed Sugar in the Urine in Diabetes Mileteus. Two quarts of water in this disease yielded 3 40 & a half of a hard, brittle, Saccharine mass like Treakle — In one week Lbs 20 of Sugar was passed —

Mundinus says a man who was ill of Diabetes Mileteus for 97 days, passed every day 45 ℔ of Urine — judge of the quantity of Sugar he must have passed

Mr Cruickshank found the Sugar in the Urine of a Patient with the Diabetes to

be more like common Sugar than that obtained from Milk. — This Sugar will not Crystallize, & is decomposed by lime. We are to understand that these circumstances occur only in Diabetes Mileteus, not in Diabetes Insipidus. — From all these circumstances a natural conclusion arises that we are to confine our Patients to an Animal diet, as this affords less Sugar. —

This subject is worthy of investigation, & altho the inference deduced appears very natural & correct, yet experience teaches us that the fact is not equally so. — Mr Geo Steel of the Bank of North America, had the fulness & tension of his pulse increased together with an increased quantity of Urine & Sugar by being kept on an Animal diet — I myself had the dryness of my skin, the quantity of Urine & its sweetness all increased by an Animal diet — This was Diabetes Non Gout, nor was I

able to get rid of it until I resumed a vegetable diet.

Certain Oils, Butter & Hogs Lard afford a Sugar different frm the Common vegetable kind. — Animal Sugar contains much Oxygen. —

Nature of Sugar

The Analysis of Sugar proves it to be a mere Vegetable Oxyd containing of Carbon 28 parts — Of Hydrogen 8 & Oxygen 64 parts. When deprived of its Oxygen it loses its Sweetness

Maple Sugar is different frm common Sugar — It is not so Soluble in water. Highly rectified Spts Wine dissolves its own weight

Sugar according to the Chemists exists in the Animal Kingdom where we the least expect to find it. So that we find it existing in the Animal, Vegetable

& Mineral kingdoms, but chiefly in the vegetable. —

The vulgar opinion is that this substance injures the teeth — but I am far from giving it credit. Dr Cullen relates that the inhabitants of Scotland who are very fond of Sugar, & make much use of it — as it enters into the composition of Sweetmeats & Confectionaries, have in general very fine white teeth. — The Negroes of the W: Indies whose diet is chiefly composed of Sugar in its different states, have been in this respect the envy of the most beautiful Ladies — I must however observe that when the teeth are already injured, large quantities of raw Sugar may increase that injury —

The good effects of Sugar in Stone & Calculus Complaints are unquestionable. You will no doubt avail yourselves of what has been said of the importance of Sugar in a practical point of view — I

now proceed to treat of

Honey. —

In treating of this Article, it is needless to give you the natural History of it — this is so universally known that scarcely any of you can be ignorant of it —

Honey altho' afforded by the Bee (an Animal) may nevertheless be considered as a Vegetable substance — For besides that it is extracted by the Bee from flowers & Plants, it is also found on the leaves of trees, deposited there by insects, & is called honey dew — It is less Analogous to Sugar than has been supposed by some Authors. —

In the first place, Sugar & Honey differ in respect to their nutritive qualities — The same quantity of Sugar being more nourishing than an equal quantity of Honey Perhaps this may be owing to the laxative qualities of the latter

2d Besides this difference — Honey in-

+ Honey

dependant of Hydrogen, Oxygen, & Carbon has two other component principles viz. a peculiar Acid, & a mucilaginous matter ——

3° Anodyne is peculiarly Anodyne, & much recommended in Asthma. The late Dr John Hunne performed a radical cure of this disease in himself by the use of this Article, & was also successful in other cases I shall here relate an Anecdote that occurred to him. — After the Dr was completely cured of the Asthma, a man who was a perfect stranger to him, but who it appears must have known that he had been troubled with this disease; accosted him & inquired by what miraculous event he had been cured. Dr Hunne informed him that it was by the use of Honey — And the stranger much emaciated & apparently dejected in his chest, disappeared. — About 2 years afterwards he presented himself per-

fectly hale, & as it were renovated, telling the Dr that the use of honey according to his prescription had produced this evident alteration in him. I have employed honey myself in cases of Asthma, & found it to be very useful. — It has also been employed in Gravel with good effects. —

The Dyspeptic qualities of Sugar are great, as is instanced in Children, but these are precarious where the Stomach is affected. —

Sugar in cases of worms acts as a poison. The Anthelmintic qualities of Honey are greater than those of Sugar. —

IIII d. Of Oil. —

Oil in a pure state is highly nutritious. The vegetable Oils are contained in most Articles Nutritive to man & other animals, as the Bean the Vetch &c &c. All Farinaceous Matters contain Oil. Bread made of the leguminous matter of the Pea

is very nutritious on acct of the Oil wh Seeds of this kind contain. Those seeds wh have the farinaceous matter blended with Oil are the most nutritious. In Scotland the poorer classes of people eat a great deal of Pea bread, & some of those who are unable to procure it are found to decline in strength. I found it indigestible to a great degree with me. —

Oil is the fundamental nutriment of man, whether Vegetable or animal, it constitutes our principal food. —

I It is ate by all nations in the World

II It does not remain long in the Alimentary Canal, but is taken up with other things by the Lacteals

III It never makes a part of the Blood — what is often thot to be Oil on the surface of the blood, is true Chyle —

IV Oil is not found in any part of the body except the Cellular Membrane, or in

some of the bones. Oil is laid up in the Adipose Membrane of healthy persons, & in some diseases it is also absorbed. This however is not on acct of any acrimony as was supposed by Dr Cullen, but for the nourishment of the body. This absorption does not take place in disease only, for the Bears in Northern Climates absorb the fat during the Winter wch they have in the Autumn, & are found in the Spring destitute of fat.—

Absorption goes on at least 40 hours after death. The Lymphatics for performing their Office after the death of the other parts, may be called the Ultimum Moriens

We have instances of life being sustained by the absorption of Fat in that class of Animals wch remain in a Torpid State during the Winter Season. These may be divided into 2 Classes or Orders. The

1st Order comprising those wch may be termed

Animals of interrupted life &c do not appear to live on their fat, & are to all appearance dead, & remain so during the whole winter. I consider the arterial System in this case to be perfectly at rest —

The 2d Order comprising those &c may be termed Animals of soporose life. In them respiration goes on. The Circulation also proceeds the pulse is slower. Besides living on their fat, they carry a little food into their holes as Condiments &c they occasionally eat — I have no doubt but that these Animals absorb fat, for they are fat in the Fall, & thin & lean in the Spring. Old writers have asserted that the Phrenic Nerve is larger in soporose Animals than in others &c &c

The absorption of fat takes place in the Horse also — Some Naturalists think that the bloodless insects derive their nourishment in the Winter chiefly by fat, as in the Locust &c

Fat is absorbed by the Human Lymphatics

Better proof shd however be adduced to prove the nutritious quality of Oil. Dr Stark lived 14 days on a diet of Oil & Sugar, & at the end of that time he had gained pounds —
Oil is not a Stimulus as muscular animal food is. Butter is very nutritious, & the vulgar opinions & prejudices against this article are extremely improper. Butter is favourable to a lax state of the Bowels. Dr Franklin found that it kept his bowels open & at the same time supported his strength. I think that Cb j of bread with a proportionable quantity of butter is more nourishing than Cij of bread alone. — It cannot be reckoned injurious unless rancid It is not stimulating & I have frequently given it in Pulmonary Complaints. —

We have now finished the Consideration of the 3 Alimentary principles viz Oil, Acid & Sugar But I do not believe these to be the only nutritious substances we enter

into the Composition of Vegetables — Man is an Omnivorous Animal the of all Animals is the most capable of accommodating himself to the Varieties & changes incident to the System, & to all the different Varieties of food. —

IV Mucilage. —

This part of Vegetables Merits particular attention. The greater number of those Vegetable Substances wch are nearly insipid, Glutinous & have been called Gums as G: Arabic — Gum Seneca, & the gum growing on the Cherry tree. These exist naturally in the plant combined with water — they are not Coagulated by heat, but by weak acids & Metallic Solutions, as the Gum Tragacanth —

These Gums, or Mucilage afford much nourishment either when ate Crude, or dissolved in water or Milk — Some Nations live almost entirely upon them. The

Moors on a failure of their crops live on G Arabic — 1000 persons journeying to Grand Cairo were supported for 3 Mos by G. Arabic. — In many diseases the Patient is nourished by G Arabic alone — It supported a child for 6 Months —

Gums contain Oxygen, Carbon, Hydrogen, Nitrogen & Lime — Fourcroy says also Phosphoric Acid — They contain less Oxygen than Sugar — but more Carbon —

When we consider the large proportion of Mucilage wh exists in plants & vegetables, we may conclude that their nutritious quality resides chiefly in the Mucilage. —

We cannot say how long other Animals can subsist on Gums — A rabbit wh was kept 16 days on G: Arabic, lost flesh but was in every other respect as healthy as before his confinement to this food —

The distinction between Gum & Mucilage according to Mr B — is that all the

plants affording the former have an Astringent bark, as the Wild Cherry &c & those plants wch affords mucilage have a bark but little astringent. This does not always hold good. Some plants wch afford much mucilage have Astringent Bark. The juice of Quinces is astringent while their seeds are enveloped in mucilage. —

Wild plants are the most astringent as Cultivation disposes them to part with their Astringency — As the Wheat Rye, Barley &c Cultivation changes the Gallic acid. >

Gum when dissolved can be drawn out into threads Mucilage feels soft & Slippery

V Carbon. —

The fifth substance wch is nutritious is Carbon, it may be considered with propriety a principle highly Nutritious — It is pure charcoal. It is considered as a simple body. The reasons wch we have to adduce in support of Carbon being alimentary is Gum

Analogy. Carbon alone, & in union with Oxygen is highly nutritious to different vegetables. We have also decisive proofs of its nutritious Qualities to Animals. Domestic Poultry, the Hog, & other Quadrupeds find considerable Nutriment from Charcoal. In treating of Sugar & other saccharine substances we shewed the nutriment they afforded to man & other animals. Carbon enters largely into the composition of these Articles. Gums also appear to be nutritious for the Carbon which they contain. —

Finding then as we do that Carbon enters largely into the composition of two of our most nutritious Articles, viz Gum & Sugar, we can hardly doubt that it performs a principal part in the formation of our Animal Fluids, & that it is one of our principal Nutritious matters.

VI Calcareous Earth

This is another matter fitted to form Animal

fluids, & to afford nutriment to man & Animals. Dr Fordyce says not — It certainly however does greatly contribute. Calcareous earth constitutes one important part of the human body, it may be produced from our Aliment, & exists in the Animal fluids, blood Semen &c — 100 parts of Semen contains one of Phosphate of lime — Its existence in these fluids is not a proof however of its necessity to Animal life, for on the same principle it might be said that Silex is a nourishing article, since it has been found in some plants — this however no one will assert. — It is found in but few plants, the Bamboo &c & exists there in a detached state. It is insoluble in the Stomach & contains no nutritious principle. —

Calcareous earth is most extensively diffused over the world — It has been supposed by some Naturalists that mountains have been formed of Calcareous earth thrown off by

animals as their Exuvia - This is carrying supposition too far - for altho' we know that immense Strata of Calcareous earth have been formed by Animals, yet we find quantities of it existing without Shells or any vestige of Animals. -

Gulls Swallow long bones without breaking them, they are dissolved by the Gastric juice - Calcareous earth is Nutritious to Birds - The Canary bird requires Calcareous Earth at the time of laying her eggs; if she is unable to procure it, she dies from the difficulty of Parturition - Stony matter or brick, will not supply its place, for the eggs are passed with the same inconvenience. Dr Thompson thinks it necessary to form the Shell.

Calcareous earth proving nutritious to the Canary bird, its facility of digestion & absorption, are all proofs of its nutritious qualities we know that it is dissolved & absorbed with facility by its proving Nutritious to other

Animals. —

Some nations in S. America, live on Calcareous earth — Rats & Mice eat it with avidity, altho' in contact with meal, a substance one wd be supposed to think far preferable.

Its affording nutriment to vegetables is another Analogical argument of its nutrition to Animals — We are to remember that Animals & vegetables form one great Family of beings, & the line wch seperates them has never been detected ——

How does it afford this nutriment to man & vegetables? — This is a problem difficult of solution. Sulphurated Carbon & quick lime affords a good manure & increases the growth of vegetables. Lime acts Chemically by destroying the fibres & turning it to earth; & if laid on the ground it moistens the earth — It is then proper in a dry soil, as it is a medium of moisture to plants. But this is not sufficient to explain its great effects —

Wheat has more Starch, its flour is finer, & its skin thinner when the ground on wh the wheat grew has been covered with lime — The common opinion here is that Lime & Gypsum absorb moisture, & for that reason is good & proper for plants — It is well founded in some measure. —

All plants in all situations contain the same principles — Plants absorb many articles, as solutions of Iron, Copper, Lead, & Arsenic, wh are all discovered in the circulation of Plants — They also have been found to absorb Calcareous earth, & vegetables are found to be finer in Calcareous soils. Oats taken fm Calcareous earth are stronger & far better than when taken fm any other soil. Plants there are certainly benefitted by growing in this earth — As it is probable we may ultimately become a Naval Nation, it becomes a matter of importance with us to select our Ship Timber fm that soil wh produces the

best, this soil appears to be a Calcareous one —

We may then draw this conclusion, that Calcareous earth is Alimentary both to Animals & Vegetables. —

Lime is no mean Agent in the Nutrition of bodies, if we judge from its vast extension thro' the Animal & Vegetable world, & its immense composition in the human fabric

We have seen then that according to Dr Cullen an Acid, Sugar, & Oil, form the Basis of Alimentary Matters. I have included Mucilage Carbon, & Calcareous earth, & also

VII Water. —

That water is one of the most nutritious bodies, & necessary ingredient of Aliments is a fact that needs no proof to establish it. It is used by every creature, & forms a large portion of the diet both of man & other Animals — It alone has supported various Animals for a length of time, & a care

is recorded of a man in England who lived 3 weeks on water exclusively. Wolves frequently subsist for a long time on water — Fishes, wh are among our most ravenous animals, will live for a long time without any other nourishment than what they receive fm the water. Three Gold Fish fm China were put into a vessel filled with Spring water slightly impregnated with Epsom ~~Salt~~ & other Salts. The water was at first changed every day, but afterwards permitted to remain 3 or 4 weeks. The fish lived 15 months in it & considerably increased in size, grew fat & threw out large quantities of Feculent matter —

Other fish lived 6 months in water tho' in a corked bottle. —

Some vegetables live & thrive in distilled water, without any foreign nourishmt they yield the same product as those of the same kind wh grew in other situations. —

Others appear to live almost entirely upon what they imbibe from the Atmosphere, as some plants in Africa which are exposed for nearly the whole year to a continued & scorching sun

The most succulent plants grow in the most barren & dry spots — hence we conclude they are nourished from the Atmosphere.

Of Light

It will surprize some to see this classed among the Nutrientia. But when we reflect that both Animals & plants depend on it, does it not seem that this, the choicest gift of heaven may be justly classed among the Nutriments. Without it the functions of respiration & digestion are irregularly performed, & the Stomach unable to perform its office. Light has no inconsiderable influence on the System It is an universal stimulus, & necessary

to give Strength to man. —

Effects of light on Vegetables

As light prevents germination, the seeds are buried in the ground — hence when we do not wish the seeds in our Cabinets to grow, we shd expose them to the light —

Heat is essentially necessary ~~to germination~~ to Germination & subsequent Stages of their growth — The moment germination has taken place, & the tender Sprout has forced itself into the presence of the light, it afterwards becomes indispensibly necessary. A Potatoe in a Cellar wh was excluded fm the light, excepting a small ray wh penetrated thro' an Aperture at the distance of 25 feet — Shot out its Vine first in the direction of the light, & travelled onward, & finally made its way thro' the Aperture

Plants wh are kept in Houses are very apt to incline towards the Windows, and many plants wh follow the direction of the

sun so correctly, as by that means we are unable to ascertain the time of the day — The Asparagus, Palo every tree, has a more vigorous growth, & shoots out more leaves on the South than on the North Side

Light promotes absorption in all vegetables — Two Hyacinths of the same size, in the same quantity of water, & at the same temperature were subjected to this experiment — One was exposed to the light, & the other excluded from it, & the quantity of water in the vessel containing the former became considerably less than that containing the latter. — Light then acts as a powerful stimulant to plants —

Light has great effect on the Colour of vegetables — Without it the most beautiful flowers wd be nearly devoid of Colour. The light colour of vegetables in the shade is owing to their not throwing off Oxygen gas as they are unable to do without the

benign influence of the Sun. In the light plants are green because they are able to throw off their Oxygen. The roots of the Potatoe when exposed to the light are green, in a cellar they are white. Celery whose natural colour is green, when blanched as we call it for table use, by depriving it of light, assumes a Pale & sickly white. Crepes confined in a dark cellar, may have their leaves preserved green by the light of a common lamp — It must not be supposed however that light is thus necessary to all plants — Fungus plants have their colour independant of light — for Baron Humboldt says that Fungus plants grow in the Mines in Germany with beautiful gaudy colours — There are certainly an exception to the general law first mentioned. — From this it will appear that all plants do not bear stimulating light & moist Oxygen, for the former must be in proportion to the fibres of the Plant — Mosses & other Plants will grow

in elevated situations 3000 feet above the sea will not thrive in Gardens — Hence the rapid death of the Alpine plants when brôt down. — Professor Pallas procured some plants wh grew on Mount C — but could not make them grow on level ground for the density of the new atmosphere, the quantity of Oxygen was too great for them, & they died for too great excess of Stimulus. When however they were supplied with an Atmosphere containing a greater proportion of Azote. they flourished — Baron Humboldt has made the same observation with respect to the plants on the mountains of Peru —

Not only Colour is so much influenced by light, but Odours, Tastes &c depend upon it — Plants whose flowers continue open both by day & night, afford more Odour in the day time than when deprived of the general influence of light. Some plants bloom only in the evening, & at night

I have said that the tastes of Vegetables is also affected by light — The different poisonous plants when they grow in the shade are nearly inert — Hemlock when growing in mines is not only Pallid, but nearly inactive — One gr. of the extract from the green leaves, is equal to 5 gr. of the dry — The green leaves of Narcotic plants therefore as Digitalis &c should be collected from situations exposed to the influence of Solar light &c

The Saccharine principle is also much affected by the influence of light — a greater quantity of Sugar being extracted from the Sugar Maple during the day than in the night. —

We now proceed to take a view of the effects of light on Animals. —

It is Essentially concerned in the Nutriment of Man Those Animals who in a State of Nature are black, when excluded for a long time from the light become nearly of a white Colour

There

There are insects wh live for a part of their lives under ground, & during that time are destitute of Colour, but after leaving the ground & coming into the air, they assume their natural Colours — The locust, a few minutes after leaving the ground assumes its natural Colour &c

Children that are born of Negro parents are not black, & those of our American Indians are nearly white, but in a few days they become of an Olive Colour —

Negro children assume a much darker hue when exposed to a strong Solar light. I think that a Negro child born & bred in a mine of S America wd be much whiter than otherwise. The Agency of light on the European skins is proved by the tan & freckles — these effects extend as far as the rete Mucosum. ——

These sentiments Gent: I wd not wish you implicitly to adopt, but by all means think for yourselves. &

Of Milk. —

Milk in some respects bears a considerable resemblance to water — it is liquid, & wets all substances that water does. — The Milk of women, goats & sheep are nearly allied — Milk is more viscuous than water & posses greater consistence. — The freezing point of Milk is a little lower, & the boiling point rather higher than that of water — Its specific gravity is a little greater than that of water.

Milk varies in different Cows, & also varies in the same Cow when drawn at different times — It boils differently at different heights —

Milk when first drawn appears to be a homogeneous fluid, but if suffered to remain some time at rest, it discovers itself to be composed of parts essentially different & spontaneously seperate from each other — These are invariably found to be of an Oily, Coag

oleum, & Aqueous Nature wch we denominate Cream, Curds & Whey. —

Cream or the Oily part is the first that seperates, it floats upon the surface is of a thick Consistence & unctuous to the touch. — The cream will even appear when confined in close vessels, but exposure to light & air, & in open vessels hastens the process of seperation — More cream is procured when a large surface of the milk is exposed, & at the same time receiving the impression of a gentle stream of Air — When milk is boiled a more copious & speedy seperation takes place, & the cream thus procured is much thicker than that wch is spontaneously formed — There is also an escape of air. The oily particles are brot into contact with each other by Agitation & made to adhere together. —

Milk becomes converted into an acid, if it be left exposed to the air after this seper-

tion of the Oily parts, & at length Coagulates
Warmth hastens this effect, as also does thun-
der & such agitations of the Atmosphere. —

The proportion of Cream, or to use the com-
mon phrase, the richness of the milk, va-
ries in different Animals; or in the same
Animal accord^g to circumstances — On the
Mountains of Scotland & Switzerland it is
uncommonly rich — perhaps fm the temper-
ature of the Atmosphere, or the peculiar Spe-
cies of Animals. When the Animals feed
on Aqueous vegetables, or those that have
not been exposed to light, the milk affords
comparatively but little cream. The less
the exposure of Vegetables to light & heat, the
more aqueous they are. — —

I do not know if the cattle of the Western
Settlements yield poorer milk than those of
the Atlantic States, but I sh^d suppose they w^d
on acct of the greater degree of light in the
latter fm their being thicker settled. They

certainly require more salt than the cattle of the Eastern States, probably for their food containing less of that article, on acct of their distance from the Ocean. —

There is also a considerable connection between the Colour of the Animal & the quantity of cream & the milk affords. It is said that the milk of red Cows affords more cream that that of others. The same remark is applicable to the females of the human species. The milk of pale women is not so rich as that of those of a darker complexion, & women of flaxen hair afford a weaker & poorer milk than those who have red hair, & is the best. This is of considerable practicle importance, as Nurses who have flaxen hair ought not be employed for weak sickly children.

The milk of young Animals contains less cream than that of those of more maturity but in old Animals who are about ceasing for parturition it is less rich than in those

who are younger. The dryer the pasture ground, the more cream will be afforded in proportion to the quantity of milk

D^r Cullen mentions a plant w^ch grows in England called Marsh with the flowers of w^ch the milk maids rub the sides of their pails in order to produce a larger proportion of Cream; & for the same purpose in Paris as soon as the milk is drawn the dairy maids sprinkle over the surface a small quantity of the Sulphate of Zinc. — A Brewer in this City complaid to me that he was in the habit of adding to Beer Porter & a small quantity of the Sulphate of Iron to give it a fine appearance, or head to the extent of about Zij to a Butt of Porter —

Cream is not a pure oily substance but contains a portion of Acid — By churning, the oily part is seperated, & butter formed.

D. Cullen says that there is no disen-

gagement of gas in this process, & that the formation of butter depends on Agitation Alone — If we boil milk, less agitation is necessary. — I do not adopt Dr Cullens opinion, a greater change than agitation does take place, for there is a disengagement of Carbonic acid gas, & at least 4° increase of temperature. The extrication of Carbonic acid gas destroys the Acidity. By agitation the Oily particles are brót into contact with & adhere to each other, & finally before the butter is formed, it combines with no inconsiderable portion of Oxygen

Cream contains a peculiar Quality — In its recent state it bears a very considerable resemblance to the expressed oils of vegetables, not only in its sensible qualities but in its component principles ——

Butter is however of a firmer consistence than any of those Oils, owing I suppose to a mucilaginous matter

it adheres to the former. Butter is liable to become rancid, & that probably not owing to any alteration in the Oily particles, but to some other Substance contained in it; for when well freed fm butter Milk, it is preserved fm rancidity much longer than when not treated in this way. Butter too when melted & suffered to remain for some time in a fluid state, deposits a Sediment, becomes more fluid, & therefore must be more pure - It is certainly less liable to rancidity. —

What is the nature of the matter that degenerated fm butter, & what is the proper subject of rancidity? It has been supposed to depend on a superabundance of Oxygen — May it not depend on a peculiar matter of an acid nature? I am unable to determine, but that it is owing in part at least to an acid that these changes take place is rendered probable by the circumstance of the rancidity being promoted by the pre-

sence of butter-milk, & for the corrosion of copper by rancid butter, wch just butter is not able to effect. —

Butter probably contains in addition to these principles a portion of mucilage between wch & the acid a fermentation takes place. Probably this fermentation we do not properly understand, & therefore we are unable to prevent the rancidity of Oils except by depriving them of their acid & mucilage. Butter may nevertheless be preserved for some time by the addition of Sea salt together with Nitre & Sugar — a little of each — the Rancidity will be very much remedied also by washing the butter repeatedly in alcohol. — In the E Indies the butter is melted & washed with sour milk. —

The Coagulable part of Milk

In a few days after the cream is seperated, the residue coagulates, & the aqueous parts are

disengaged & are called Whey - An acid state precedes Coagulation. - The Whey, & the Coagulum, or Curd, are both much used as articles of diet particularly in the U States. This spontaneous Coagulation is permitted in order to obtain a kind of Cheese - But cheese is generally made by an artificial coagulation, & the article made use of to effect this is called rennet - This is usually performed by filling the fourth Stomach of a Calf with milk w^h becomes coagulated. The Stomach with its contents are preserved for use with Salt & water. - It has been said by some that the power of Coagulation was in proportion to the quantity of acid contained in the Stomach. Dr Young has proved that the effect of Coagulation is not to be ascribed to the quantity of acid but to some other cause. -

This power is not peculiar to the Stomach of the Calf, but belongs to the same Organ in other Animals in a living state

thus living fish coagulate milk, whereas dead ones do not. —

Certain Vegetables also possess the property of seperating, or rather hastening the Seperation of the Cheesy from the Serous part of milk as the Madder, Thistle &c. This effect is however to be produced only on Cold milk, or by a cold infusion of them, for if put in hot milk, they retard the seperation. The Leaves of the Persimmon, & the caustic Alkaline salts dispolve the cheesy part of milk. the mild ones coagulate it There are therefore different methods of producing Coagulation of milk. the common method however & the best one is that by means of rennet. The capacity for forming rennet exists in the Stomach & not in the Intestines. —

All kinds of Cheese resemble animal matter in being liable to putrifaction. — The Coagulum is also formed by acids, Alco

hol, & heat.—

Cheese yields to distillation the Vol: Alk: hence it has been supposed to be Animal, but with me this has no weight for the Horseraddish Turnip & furnish upon distillation a concrete Vol: Alk: & some vegetables give more of this out than Animals of the same bulk.— Chymists however are not unanimous in opinion that cheese affords Ammonia. Dr Ferris appears to think that in experiments to prove this, old cheese has been used, & it is well known that these contain Animalcules.— I think at least that cheese partakes more of Animal Matter than any other part of Milk— Milk contains a portion of true Animal Matter

Cheese to dry distillation affords the Vol: Alk: Carbonic acid— Empyreumatic Oil, leaving a Carbonaceous Residuum &c—

contains Potash or Soda

Cheese is insoluble in water & shews an Analogy to the Gluten of wheat

Whey. A considerable quantity of water enters into the composition of all milk – It seperates spontaneously or artificially fm the other parts & according to Drs Hoffman & Young it constitutes 7/8 of the whole mass – Its nature is different in different instances – The proportion of whey varies less than that of the Oily parts. –

It is affected by a variety of circumstances If it be seperated by rennet, it will contain a small quantity of oily & Caseous matter – but if left to seperate spontaneously, it will be free fm those substances –

Buttermilk contains the watery, Oily, & Caseous parts of the milk —

Whey differs also according to the Animal fm wh it has been taken – A peculiar

Saccharine matter enters into the Composition of Whey — It is true sugar — has an insipid Sweetish taste — The process of forming it Consists in depriving the whey of its Cream & Curd, & evaporating it to the Consistence of Honey — It is then put into moulds & dried in the Sun — It is afterwards dissolved in water clarified & set to Crystallize. The Crystals are the same with alkalies, neutral Salts, & are soluble in 4 times their weight of water. —

Besides Sugar & Milk, the Muriate of Potash & Soda, Steel, Phosphate of lime, Water & enters into the Composition of Whey. —

Sugar of Milk is composed of the Basis of two acids — after the Salts contained in it seperates, they whey Concretes. —

Sugar of Milk is the same in all Animals but exists in them in different proportions. —

℥iv of Human Milk yields 58 to 70 gr. of sugar
" of Cows — — — — 53 to 54 Do

" of Asses - - - - - - 80 to 82 grs
" of Mares - - - - - - 67 to 70 "

So that we find Asses milk to yeild the most sugar, & cows the least

On Analysis, cows milk yields water, Curd, Oil, Gelatin, Sugar, Salts, Muriate of Potash, Sulphate of lime, & a small quantity of Iron. —

The milk of women is sweeter than that of Cows & yields more cream as the milk is more of an Animal nature. It is also whiter. —

The proportion of Caseous part of milk is greater in Ruminating than in Non Ruminating Animals. —

How is milk produced in the Female &c? The common opinion is that it is formed from Chyle before it is assimilated. From its resemblance to Chyle it has been supposed that the Chyle is carried directly from the Thoracic Duct to the Mammæ of the Females where assumes the form of milk. To this purpose

certain vessels are appropriated wh Anatomists have not yet been able to discover — But this doctrine I cannot admit S. for in the first place it is not at all probable that the Chyle after passing into the bloodvessels remains any length of time unmixed with the blood; & with Dr Cullen I judge there has been much mistake in observations wh wd lead us to conclude that it has been found in an unmixed state in the blood — There might have been some morbid appearance in the blood on wh these observations were made wh might give rise to the mistake — It is indeed almost impossible that they shd be correct. It is a long time after food is taken into the stomach that it enters the Subclavian vein in the form of Chyle, & then only in small portions at a time, & is therefore immediately blended with the mass of blood. The diffusion increases as the whole is carried on to the right ventricle of the heart, & in this

as in the subsequent passage thro' the lungs & left ventricle of the Heart, the whole is acted upon by powers wh must blend & diffuse the Chyle in the most intimate manner — These circumstances must therefore render it impossible that chyle shd be perceptible in the blood when drawn — The supposition therefore that milk is formed fm Chyle passing directly fm the Thoracic duct into the Mammæ is very ill supported. — How much soever of the food recently taken in we may find going to the production of milk, we shall find it very improbable that chyle takes that course in the same form, & in the same crude state in wh it enters the Bloodvessels, & we shall find it much more probable that milk is produced in the mammæ of the female by the mysterious & curious powers of Secretion

Chyle has been observed to swim in the blood just after eating — but in health this

does not take place. We find in Diabetic & Paralytic Patients the Serum assuming a whey like colour - This is a rare occurrence, & is a proof of Morbidity - I have never observed it except in Vertigo, Arthritis, Angina Pectoris, Palpitation of the heart, & Stricture of the Chest. A man in this City allowed 5 or 6 times, always discharged blood in w^h Clyfe was floating very perceptibly on the Serum; & a kind of cream also. He never had been troubled with the Gout, but from this appearance I ventured to predict its occurrence, & accordingly a few days brot on a severe fit of Arthritis. —

Milk will partake both of the smell & taste of the Aliment or w^h Animals feed — as Garlic &c

Purges when given to Nurses or Mothers will exert their Cathartic effects on the sucking infant - It has been said that the Purgative matter is absorbed & goes into the

circulation — One gr. of Calomel we know is sufficient to purge some Constitutions. Now if the child be purged, can it be by absorption for some must be expended on the Mother. & if even 1/2 gr. was to go to the child, that small portion cannot act as a Cathartic on an infant who we all know is more difficult to purge than the mother. — 3 or 4 gr. taken by a nurse, for the impressions communicated by that nurse, will purge the child more than if it had taken the whole itself. — This fact is of great practical importance, for in Hydrocephs: Intern: we might purge children thro' the medium of their Mother or nurse. Dr. Cullen asserts that Purgatives taken by nurses have no effect on children at the breast. — That they have effect however has been satisfactorily proved by Dr. Young, & my own observation has convinced me of its truth.

The Qualities of Milk are affected by

* These facts wh I have mentioned are not to me convincing proofs of the absorption of this Article - for the Atmosphere - If the room in wh one person is salivated will produce the same effects on another

the Aliment. When Cows eat a particular plant possessed of Emetic qualities, the milk also becomes so - Whole pastures have become useless by the growth of particular weeds which imparted Cathartic or other qualities to the milk -

Children have been salivated by sucking their mother when under the effects of mercury - It has been said that infants have been cured of the Venereal disease by mercury imparted to them thro' the medium of their mother, & it has produced such a violent effect on the child by salivation as to cause its death, altho' it had very little intercourse with the mother except when sucking - Mothers furnish only a small quantity of milk when under the influence of mercury. - *

Children appear to be salivated by the Inhalation - Still however, as I have said before it is in certain cases absorbed into the circulation - Dr Hamilton is said to have detected

Globules of Mercury in the milk of a woman that had been salivated. Dr Young who was very intent on the enquiry never found that Merc^{y} taken by the mother purged the sucking child; & Dr Cullen says that in 50 instances wh^{ch} he has known, the child was not affected by purgatives given to the nurse. — He adds that he has known children to suck ye Nurses who were in the practice of the excessive & frequent use of Spirituous liquors without ever being intoxicated — this has been disputed by some Authors, who adduce facts to prove the contrary to be true. — Dr S — mentions the following case wh^{ch} he got fm a Lady of undoubted authority — This lady being of a weakly constitution put her child to the breast of a woman who afterwards proved to be a drunkard — The child did not progress so rapidly as is common, & the mother changed its Nurse. She now discovered the wo-

mans failing & found her infants health to decline — Its Stomach having been accustomed to the stimulus of the Brandy wch was contained in the Nurse's Milk was unable so suddenly to do without it. The Lady therefore mixed a little brandy with its food, & diminished it gradually — its health soon recovered, & it grew rapidly. —

The secretion of Milk is universally increased by taking aliment, & abstinence universally produces a diminution of it. Liquid food will furnish a greater quantity of ~~food~~ milk, than solid. Cullen says he has known some nurses who were naturally free from thirst, but who upon beginning to suckle an infant were accustomed to drink in large quantities —

It is a curious fact that Cortiveness takes place in women giving suck who at other times are regular — this is explained by admitting the aliment wch usually go off by way of faces & secretions to be taken up by the

increased action of the intestinal absorbents.
Solid matters produce but little milk

The Oily & Coagulable part of milk may be drawn from our diet, & so also may I think the Saccharine parts, for I think the Sugar of milk is afforded by the Sugar we enters into the composition of our diet

Bergius discovered that Vinegar coagulates the milk of Herbivorous, but not that of Carnivorous Animals — It will not coagulate the milk of women unless they feed on Vegetables. A vegetable diet produces milk afford[s] less oily matter or Cream. —

Women in Greenland give milk with scarce any sugar owing to their diet

The Physiology of the fluids have been too much neglected. The powers of assimilation are great, but there is a point beyond we they cannot go —

A vegetable diet renders the human urine much less acid than Animal

but Animals living on Animal diet affords more of the Phosphoric acid. —

The Taste & Colour of certain Vegetables are communicated to Animals living on them The milk of women will taste of Wormwood &c &c Bergius says that madder will colour the milk of Cows & also that of women. The Serum of the blood & fat about the joints are coloured by madder. — Saffron will communicate a yellow colour to the milk of women — The particular qualities of milk then depend very much on the Aliment taken in. —

We come next to consider

Milk as Alimentary

Milk forms the nutriment or aliment of the young of all the Animals of the class Mamalia, with one exception, viz, the Porcupine. The Indians say they carry their young to the Black — & let them suck

its juice for nourishment. But I shall only speak of it in this view as it respects the human race

The first production of milk in the female, being always Coetemporary with that of the Offspring, its being well adapted to the method in wh the infant procures it by the organ affording it, & the new born infant being instinctively directed in sucking; leaves no doubt but that nature intended this milk for the nourishment of the young Animal. — A feeble objection has been urged against this position viz the rejection of milk, & its Curdling. The first arises from over-distention, & the second is wisely ordered to prevent correct morbid acidity. It is healthy & the more hearty & robust the child, the more is the milk curdled. —

A question here naturally arises, & that is. How long shd children be allowed to remain at the breast? On this question

authors are not unanimous. Dr Cullen was of the opinion that the proper limits was at the termination of 6 or 7 weeks from the birth of the child. While Dr Haller observed that children who had been permitted to suck very long are generally very healthy. —

Dr Cullen thot that long sucking disposed the constitution to Rickets — That this opinion is fallacious we can prove from our Indians — They suckle their children uncommonly long indeed & this disease is entirely unknown among them. — It is true they don't walk as soon as other children, but this is occasioned by the preposterous custom of tying their feet to a board, in order to carry them more conveniently, & thus depriving them of that peculiar motion of the limbs so natural & agreeable to them. — We then conclude that children are robust in proportion to the time they suck — To determine however the precise time

when they shd quit their mothers breast & take other aliment is certainly difficult

Dr Cullen thót also that children shd not be allowed vegetable diet until they were 5 months old, & that the quantity shd be gradually increased.— Here I differ from him, since there are many farinaceous substances in my opinion highly proper, for the infantile powers of digestion will accommodate themselves to it. —

I need not stop here to consider the alimentary nature of milk as it respects Adults, & indeed people of all ages — Daily experience teaches us that it affords a great deal of nourishment. — I shall pass on to consider

Milk as a Medicine

Dr Cheyne thót it was adapted to every case, & that its use wd ensure a life as long as an Antidiluvian Patriarch.

D

As milk is in my Opinion more easily formed into Chyle than any other Substance, so it appears to me to be particularly suited to cases of extreme debility where the Organs of digestion are fit for this Aliment

Where there is a vitiated state of the Fluids, I think it is also one of the most proper Medicines that can be used. —

In Scurvy too I believe it to be extremely salubrious, & when joined with a Vegetable diet, I think it will have the effect of preventing the Scurvy where there is a predisposition to it — It prevents scurvy better than other Articles in those Regions where the complaint is common. The Milk of the Rein Deer is a preventive of this disease in Lapland. —

In Scrophula. Much reliance cannot be placed on Milk in this disease In fact we find Scrophula most prevalent where children live almost exclusively on

milk. This disease is not I think properly understood. We only know that it is a disease of the Absorbent System. It is very common among the North American Indians who after being taken from the breast use a smaller proportion of milk than other people. Scrophula is however more common in the Country than in Cities, & this seems to prove that it is not owing to an abstinence from milk. The fact probably is that milk has but little or no effect either in preventing or curing this disease. —

In P. Pulmonalis. Volumes have been written to shew the efficacy of Milk in this disease. It certainly must be often injurious, & can only be beneficial in the low stage, where from the exhausted state of the Bloodvessels it is necessary to fill them. It is founded on a Phlogistic Diathesis of the Lungs, hence the Lancet, Digitalis, abstraction of light &c form the proper treatment —

in the first stage — Milk is proper as an intermediate kind of Aliment — It is adapted to many cases but has done much less good than is commonly supposed. It is frequently injurious in the Fluid consumption, where the skin is hot, frequent pulse, & with a constitution inclining to Plethora — Milk will increase these effects —

Milk is often difficult of digestion — Asses milk has been supposed to be peculiarly proper as it contains so much more saccharine matter — Riding on Horseback & this milk was Dr Sydenhams remedies Mrs Pauthon, the Western Beauty, who had this prescription for a Consumption, on her death bed told her Physician she had long wondered why this milk was particularly prescribed — but now she knew that Asses milk was an Asses remedy

Gout. — Tho' I often think Gout is founded on a Plethoric State of the System, yet in this disease I think milk is useful I will not however go so far as Dr Cullen has done, that milk is sufficient to prevent or cure it. Neither Milk nor vegetables will have this effect, for people who have lived entirely on vegetables have had it most violently. — If any thing can prevent Hereditary Gout, it is something besides vegetables & milk, & abstaining from wine —

Milk will produce Plethora, & in my Opinion Gout may be induced by any substance that is nutritious. I do not consider this article as proper for a Sedentary Adult — Its Nutritious Qualities are very great. A vegetable diet & drinking milk may moderate the Paroxysms of Gout, but cannot cure it — nor prevent it where there is a predisposition. —

Dr Darwin says "avoid strong drinks

& it matters not how much Animal food is eaten" This is incorrect

"Women & Wine with idleness alone
Are the first Parents of Gout & Stone"

There is a great connection betwixt Gout & Calculus. In Calculus, milk has been recommended with no less Zeal -- D -- says milk will cure both Gout & Calculus. That this is incorrect we can prove from those who live on a vegetable diet having this complaint with the same violence. It is unnecessary for me to adduce arguments for the purpose of proving that milk is insufficient & incompetent to the cure of Calculus. =>

Epilepsy. Dr Cheyne depended on milk for the cure of this disease. Cullen also thot highly of it. It is certain that a rigid attention to vegetable diet is of the greatest importance in this disease. I don't here allude to the Plethoric Epilepsy, or

or where there is a determination of blood to the head - for milk in this case will be improper — It must be injurious in many cases. — It produces in many people a fulness of the head, Headache, & Fever

Milk is only proper in Epilepsy of persons of thin habits & feeble systems.

Materia Medica

I now proceed to treat of that branch of Materia Medica properly so called which is unquestionably the most important & difficult part of the Science; not on account of the number of Articles, but for the want of a knowledge of their operation, & their proper arrangemt. — They shd be disposed according to the Spentical properties by wh they are characterized. — I do not think it necessary to make any Apology for beginning with Astringents, or as they are commonly called Astringents — I shall designate them by the former of these appellations, it being the more classical one of the two.

Some writers on the Mat: Med: have wished to abolish this class altogether — I shall probably hereafter discard them, but

am not ready for it at present, as I shd be at a loss how to arrange many of the articles, but as to many of them I could easily put them under the great class of Ionics. — But there are some substances to w^h this term is more applicable than any other, for instance Saccharine: w^h could not well be placed among the Ionics. — We ought to be cautious in giving new names, & discarding old ones, unless we have a body of facts on w^h we may depend. — The French Chymists set about their new Nomenclature with such Ardour, as to produce many new names w^h were no better, if indeed as good, as the former. The Term Azote for instance was applied to that gas w^h was called Mephitic dephlogisticated air &c Azote however in signifying the destruction of life, is equally applicable to all the gases except Oxygen. — In the first place

they did not know that Nitrogen was fatal to all Animals — In the Second there are others equally fatal; & in being negatively fatal to life, both Vegetable & Animal are included — Now we know that it is favourable to Vegetables. — Many other instances I could mention, but will only say at present, that this Nomenclature will not be immortal. ———

Dr Darwin displeased with the term Astringentia & Tonica, has substituted Sorbentia in its Stead, a term certainly far more objectionable than the other, as it involves a theory not yet ascertained. ——

We must consider astringents as a distinct Class of Med: but as I have hinted, it will be no harm to abolish them altogether

I shall make three Sections under which I shall include

&c —

II^d. Those Articles most remarkably characterized by an additional quantity of unmixed Astringency without a bitter, as Alum, Galls &c

III^d " Articles known to be characterized by a bitter taste & qualities without much astringency

IIII^d " Articles remarkably characterized by both bitterness & Astringency. —

Astringents, says Dr Cullen, are such substances as when applied to the human body produce a condensation & contraction of the solid living fibre, thereby increasing its density & force of Cohesion. He thinks this operation is owing to an attraction subsisting between the Astringent, & the particles of the Animal Solid. — I am not satisfied with this definition, & theory, however ingenious, yet I am unable to give you a better explanation of the Modus Operandi of this Class — Just of Jannin

Tannin. —

An infusion of the Oak Bark affords two principles — the Tan or Tannin, which is the astringent, & a certain extracted matter. These two principles exist in all vegetables, but are in the greatest proportion in the Nut gall & Catechu. — The Tannin is more soluble than the extracted matter. —

When the Animal hide is put into an infusion of the Oak Bark, it will extract the Tannin, & the peculiar extracted matter, leaving nothing but water — A Brown colour is produced — A Chemical Attraction takes place in the hide, it becomes firmer & stronger, & the putrifactive process is stopped.

These Affects are essentially different in the living body — We have seen that hides will absorb 1/3 & even 1/2 of the whole vegetable principle, but in the living body it is totally different, as the liquor cannot penetrate thro', & the skin is impervious to

the external application of Astringents. And even if it were absorbed, it could not act on the gelatinous principle of the body, for this wd be prevented by the Bucfels — Animals in a Torpose State have lain for months in ponds where the Oak bark has been plentifully diffused, but the external integuments never assume the most distant appearance of a dead hide. An astringent Bath had no effect on a Salamander, wh I kept in it for weeks. — the impracticability then of admitting the Tanny matter into the living body must be admitted.

Astringents are Antiseptic — Bark stops Gangrene by acting on the adjacent living matter. —

Mr Moore has proved that Oak bark has no power in contracting the fibres of a living body, he put his hand into a hot astringent bath, & the perspiration was increased. In a cold Bath, the diameters

* where the Astringent was not applied

of the perspiratory vessels were not diminished. — Some Astringents, as Alum, applied to the tip of the tongue, occasion condensation of the fibres & Corrugation of the mouth. — Darwin ingeniously accounts for it by saying that it causes an absorption of the thinner part of the fluid. The condensation of the fibres in conjunction with the absorption of the thinner parts of the fluid, may perhaps be the cause. —

Astringents exert effects on living vegetable bodies. Three branches of a Species of the Euphobia were given out a milky fluid when cut, of equal size were divided by a horizontal section. — The first was dipped in a powerful astringent — To the second it was applied — the third was just wiped with a sponge — The milky fluid was completely stopt in the first, dryed in the second; & on the third,* no effect was produced. —

It is erroneously asserted by some that the

operation of Astringents is confined to the parts only to wh they are applied. Dr Heberden says he did not give astringents in Hemorrhages because he did not suppose them to be beneficial except in the Prima Viæ — Now we know that in Hemorrhages fm the nose, Uterus, Lungs, astringents are our very best remedies. — Astringents are carried beyond the common tract of the intestines & go into the course of the Circulation. Madder is an Astringent, & as we have seen it colours the milk, the Synovia of the joints, & even the Cartilages. The quantity of astringent substance introduced into the blood is extremely small. A Paroxysm of Intermittent fever will be prevented by Bark, & one gr. of Sacch: Sat: will almost immediately stop an Uterine hemorrhage. Now if the Astringent substance be absorbed, so small a quantity could not have produced its effects so soon; & we can't ascribe its operations to

its action on the blood. — Lead will stop an Uterine Hemorrhage in 20 or 30 minutes, now we cannot say that it is owing to its introduction into the mass of blood. We conclude then that its effects are owing to the general operation or impression on the Stomach, & from thence propogated thro' its medium to other parts of the body however distant. —

The Rationale we cannot give — the Stomach is affected, & all other parts thro' its medium, with the injurious or Salubrious effects of the Substances taken in — It is a fact not generally known, that Boerhaave & the Humoral Pathologists was acquainted with this last mentioned fact. It is apparent from these words of Boerhaave — "I think say he that Opium enters into the blood, but first acts on the Stomach, & thro' its medium on other parts of the body". —

The Astringents & Damnum Sorbentia are synonimous terms, but his class includes

not only astringents, but Tonics - We have already mentioned that as a distinct Section, a class of Astringents is useless, but to discard it is now difficult; as we are unable to tell when those Medicines characterized by astringent properties shd be placed. The mode of Operation assigned by Dr Cullen to astringents is certainly incorrect - The Stomach is the seat of impressions from which they are conveyed or communicated to the most distant parts - I say this, without pretending to give the Rationale

It is the opinion of many Authors, that all astringents are composed of an Acid & an Earth - In the astringents of an Acerb taste, such a composition seems to be evident, & the supposition seems to be confirmed by observing that an astringent quality is produced by certain compositions of Acid & Earth, as in the case of Alum. We must not however conclude this to be a general propo-

sition, as in many cases, a combination of acid & earth produces matter of very little astringency; as in cases of acids joined with Calcareous earth &c. — Many astringents are Purgative — The combination of the Sulphuric acid & the earth called Magnesia, forms a purgative neutral salt — This appears to contradict the opinion of those who think that all combination of acid & earth are Astringent; but it is no positive proof however, for astringents are under many circumstances Purgative & vice versa. —

Alum (or Sulphuric acid & Alumine) is certainly on the other hand lightly Astringent.

The astringent principle is of a Saline nature — An acid generally exists in Astringent substances, perhaps not always — In many vegitable astringents we cannot detect the presence of an acid, but all agree that an acid enters into the composition of this principle

Galls &c are greatly astringent, has the acid principle in a great proportion resting in them - this acid is called the Gallic acid - Galls have not, as is generally supposed, the greatest proportion of acid, for the leaves of the Shumach, & many other plants have much more. -

Gallic Acid. It reddens the Tincture of Turnsol, is insoluble in one & a half parts of its weight of water, & 4 in alcohol, & gives out a dry salt. When digested with the nitric Acid, it gives out the acid of Sugar. It forms soluble neutral Salts, with Lime, Magnesia Barytes &c

Cultivation as we have already observed deprives plants of a considerable portion of their astringency. -

Dr Woodhouse who paid great attention during a large portion of his life to the investigation of this subject, supposed the Astringent principle to be composed of

Gallic acid & Alumine, that is Gallate of Alumine. — I always had my doubts, & Dr Walker, a very ingenious graduate of this university in his Inaugural Dissertation has proved most satisfactorily that astringents are not a Compound of Gallic acid and alum exclusively, but gallic acid with any earth, as Lime, Magnesia &c — & to this Opinion Dr Woodhouse in the latter part of his life agreed. —

But on the other hand, we are not certain that the Gallic acid alone is the only acid that enters into the composition of the Astringent principle —

How are we to detect astringents? — In the first place by its effects on the living body — By its producing constriction in the parts to wch it is applied, & more especially when applied to the tip of the tongue, & by its particular effects on the mouth and Fauces. — Secondly By its becoming of

a black or blue colour when applied to the Sulphate or Oxysulphate of Iron. The colour is of a fine Prussian Blue, at least my experiments have produced this result particularly in the H.— — This we suppose is occasioned by the astringent attracting the acid fm the Iron with wch it was connected, & that the iron therefore falls down in a black or blue powder. This latter test is of greater importance in a Chymical than in a medical point of view, because we are not to judge of the medicinal powers of astringents by their striking this blue or Black colour with the Sulphate or Oxysulphate of Iron. for Tea will strike a black or blue colour, but all the tea in Japan wd not produce the effects of Saccha: Sat: or Peruv: Bark. It has been said that the Oxysulphate of Iron shd exclusively be used but the simple Sulphate answers every purpose. ——

I shall conclude these general observations by saying a few words on the

Pharmaceutical treatment of these bodies, or the best mode of giving them.

As a general Rule, astringents shd be always given in substance if practicable, that they may be dissolved by the gastric juice — their powers are better extracted by the gastric juice than by any other menstruum. Those wch are insoluble in that liquor, as the Resin of astringents, may be mixed with a small portion of gummy matter wch renders them completely soluble. Dr Jno Reid of N: Carolina was the first who proved that resins are insoluble in the stomach. He experimented on the Resin of Opium - I repeated his experiments on Henbane, found them entirely correct, for its resin without being given in some extracted matter, was entirely inert on all Animals upon whom I tried it. It exerts all its effects also when

dissolved in Alcohol. At times the Stomach will retain Medicines in a liquid form, when it will not in the Solid. In distillation the Astringent body don't arise its qualities are given out to water & vinous menstruums, but more to the former

Decoction is another mode of exhibition, water & heat are here applied, & the impregnation is stronger than when simple infusion is made — I object to the exhibition of Bark in decoction, in this way we in a great measure loose its powers; & I think just pouring boiling water over the bark, stirring it frequently, & forcing it rapidly thro' a Strainer will be found far preferable. The distilled water of astringents is frequently inert — Infusion & decoction are the best methods of using it, & of suspending their vertues

The astringent principle being very soluble in Ether has been supposed by Mr. Desmoords when used in this way to enter

the vessels more readily - This is possible, & possible only to be worth the trial. —

Diseases in wch Astringents are employed.

In all ages astringents have been recommended as well by the Vulgar as by Physicians in Intermittent Fevers. I think it probable that the employment of Astringents was one of the first discoveries in Med: As Intermittents prevailed in all countries, & those bodies wch are characterized by Astringent properties, are here our best remedies. The purest & unmixed Astringents are not so proper as when they also combine the bitter & Aromatic properties. —

Debility. Astringents have been used in this Complaint in all ages. The antiquity of a remedy however is no proof of its propriety - No doubt it has often been given at random & with much injury to the Patient.

Cachexia. They have been recommended in Cachexia, a term of extensive import— And it certainly is not advisable to use so large a Family of Med: in a class of diseases, so extensive, & designated by so vague a term

Dropsy. Cullen says that astringents & the preparations of Iron shd be used in the beginning of Dropsy But we know that dropsy frequently arises frm causes independent of debility — Often frm an increased action of the Heart & Arteries, in wh case they must be manifestly injurious — Are they ever admissible in Dropsies depending on Febrile effusion? I am sure they are. I have given Bark with infinite advantage in the case of a young lady who had intermissions of her Fever in the morning, & the first day the Bark moderated the violence of the fit — She became perfectly well —

The Lancet is often as proper, & at times more so than either the Squill or Digitalis

Many febrile Dropsies may be well managed by means of Astringents, & they may be often used when Fever is present. They are frequently our best Remedies. —

Typhus fever has often run into Dropsy of the breast & abdomen — In these effusions attended with febrile action, it is useless to bleed, tap, or give Diuretics — But keep an eye to the first disease, & you will find the bark completely successful — A case of this kind came under my own care. I have seen true Hydrocele induced by Arthritic affections. A Gent: near this City who was subject to irregular Gout, & who was then labouring under it — had a true Hydrocele formed. The attending Physician proposed an immediate operation wch I objected to on the ground of its arising from a true Arthritic affection, wch if we could dispirate, the water wd immediately disappear. — We then proceeded to relieve him

of the Gout &c we effected in part (that is, brot the Gouty affection to the feet) by Sinnapisms & Blisters. & the water immediately disappeared as Prognosticated - I shd then think it proper to ask a Patient in this disease, what was his constitutional disease, as the Hydrocele may depend on Arthritic affections. —

Hemorrhages. Astringents have been much used in restraining excessive evacuations; & all unite in recommending them in Hemorrhages of Red blood. If Dr Stark's distinction of Hemorrhages into active & passive be correct, they must be injurious in the first, & beneficial in the latter. Some Astringents are too powerful for some cases, as Sulphur, Copper &c - And the mild will prove beneficial as Sacch: Lat: &c

In some Hemorrhages from the Intestinal Canal, astringents wd be hurtful. I saved a Patient in an Intestinal Hemorrhage

by bleeding him in the arm when the Primitive Hemorrhage was going on. Often however the powerful Vegetable Astringents, & particularly some of the Mineral, as Sacch: Sat: &c are excellent, & they are the most important Articles we can resort to in the Intestinal, Uterine, & Nasal Hemorrhages. If I were to write a book of Aphorisms, one sh^d be — In many cases of Hemorrhages, astringents are our most important Articles. —

How do Astringents Operate in Stopping Hemorrhages? It often depends on the Astringent Quality. — At times however we stop them by Medicines possessing scarce any Astringent quality as Ipecacuanha &c

Diarrhoea & Dysentery

Altho' Dysentery & Diarrhoea arise from the same remote Causes, they are very different, & often require very different modes of treatment. In both however astringents have been recommended. They are certainly

far less applicable to Dysentery than to Diarrhoea. Dr Cullens reason for supposing astringents improper in Dysentery is, that Dysentery arises from an increased Contraction of a considerable portion of the intestinal Canal. I think them in many cases improper but not for Cullens reason, which to me is by no means satisfactory. More probably Dysentery arises from a Febrile, & at times from an inflamed state of the mucous membrane of the intestines

All astringents are not admissible even in recent Dysentery. Some of them lower the action of the Heart & Arteries

Some astringent vegetable fruits have cured the Dysentery, but not from a Purgative Quality, nor was any other medicine concerned. Some Physicians depend on Peruv: Bark in Dysentery. I acknowledge that there are some cases of recent Dysentery, to the cure of which the Bark is ade-

quate if it Purges, but the position is a dangerous one, & calculated to produce much mischief. Astringents have been recommended in all ages in Diarrhœa. — When it appears to depend on a relaxed & languid condition of the Intestinal canal, the most powerful astringents are to be used. But this Complaint often depends on a Febrile state of the Intestines also, in wh^ch cases astringents must be manifestly injurious — We see from this that Diarrhœa is not to be indiscriminately managed by Astringents. —

The Diarrhœa was Epidemic in France from taking up the leaden Coffins to turn them into Shot. Putrid effluvia must have been the cause in this instance

Diarrhœa is sometimes a translated disease — the Gout for instance is often translated from the feet to the intestines, there producing Diarrhœa. Febrile diarrhœa sh^d be cured by Blisters to the Abdomen & Ankles. The Lancet

Purges &c. instead of Kino, Alum & other Astringents. —

We come next to speak of the use of Astringents in a disease of the Female Sex called Fluor Albus, Leucorrhoea or Whites. This consists in the discharge of a white serous matter from the Uterus. At times it is as yellow as the finest flowers of Sulphur making a near approach to Gonorrhoea from wh it is often with difficulty distinguished. —

This disease has been divided into two kinds — the Calidus et Frigidus. The former connected with Fever, the latter not. The distinction is just, but the terms are objectionable. — Astringents have been strongly recommended in Fluor albus. But they often fail, & are often beneficial. I have employed several metallic & vegetable astringents with the most unequivocal advantage in very many cases of this disease. —

Astringents being beneficial in some

cases, & injurious in others will not surprise us when we reflect on the distinction of the disease we have just hinted at —

In Fluor Albus we often find much fever, & we know that the serous discharge is kept up by the increased action of the heart & Arteries, & Uterus — Now in this species or distinction of this Complaint, it is not easy to conceive how injurious astringents might be. In 10 cases out of 20 I have found the disease attended with fever —

On the other hand, in the Chronic form of Leucorrhoea, Astringents are highly beneficial, & form our only remedies. This like all other complaints, requires minute attention to its different Stages — The rest of Iron in the Chronic Stage is good. I have used Blisters with the greatest advantage in Leucorrhoea This remedy may appear singular — but in 3 cases we came under my Care, blisters to the small of the Back effected a cure after the

failure of Astringents & other remedies. In treating the Jelous discharge from the Urethra of the Male, we often find astringents beneficial. — In many recent cases, or where inflammatory Symptoms exist they are hurtful

In Gonorrhea of long standing, with Chordee & no fever, the internal exhibition of astringents is certainly proper. Sacch: Sat: is at times admissible when the other more powerful astringents are not

Diabetes Most Physicians have agreed in the exhibition of Astringents in this Complaint, often I fear with much injury to the Patient — The hot dry skin, incited Pulse, the great thirst &c attend this disease too plainly indicate a Jebrile action. — The nature of this disease is but little understood — Dissections shew the Kidnies & their vessels to be enlarged — There often exists an increased action of the Heart & arteries. I have used with much

succeeds, low diet, Nitre, & Tart. Emet: with the addition of taking a little blood from the arm. — By these Remedies I cured one man twice of this disease. —

It occurs in persons liable to the Gout, particularly the retrocedent or irregular Gout. —

We have already noticed the appearance of serum in the blood of persons affected with Arthritic Diabetes. Some Physicians have extolled Alum & other astringents while others have decried them with as much violence. These contradictory accounts are very explicable. The advocates for astringents in Diabetes have used them in the Chronic state of that disease unattended with fever or inflammatory diathesis, while the opposers have exhibited them during the existence of the increased action of the Heart & Arteries. Diabetes then does not always depend on simple debility of the kidnies as has been supposed. —

Calculus. Astringents have been recommended here by D^r De Haen & Hucker They relieve the distressing symptoms of Calculus. — In 1711 D^r Hucker, a German wrote on the efficacy of Astringents in Calculus Cases. — Cullens Opinion of the Operation of Astringents in Calculus is not Satisfactory — He says they act by absorbing an acid hence says he, alkaline astringents are best. Now we know Carbonic acid to be our best Lithontriptic Medicine. And we are equally certain of its having no attraction for an acid, & being destitute of alkaline properties. Our best Medicines in Calculus have no alkaline properties. But more than this, he has not proved the existence of an acid in the Stomach, & even if he had, where are the proofs that Astringents w^d absorb it? Neither does the action of these med: depend on their Tonic power. I lay it down as an Aphorism, that there is something in Dept-

able astringents & does relieve Calculus, & that they afford relief by their astringent properties & powers. — Uva Ursi caused a man to evacuate Calculi, what he had never done before, & he was uniformly relieved by this astringent Med: — As to constipation, more of this hereafter. —

We come next to the consideration of

Particular Astringents.

Many of Cullens Mineral Asthingents shall be placed under the head of Tonics

Vegetable Astringents.

The Astringent principle is greatly diffused. A great Number of Vegetables contain it, Even the leaves & the roots of the strawberry But the Barks of trees contain more than any other part. — I shall associate the astringents according to their several degrees of astringency beginning at the strongest

& proceeding down to the weakest. Dr Cullen arranges them according to their Botanical affinity, but this in my opinion is liable to 2 objections

1 It wd require the Student to possess considerable Botanical knowledge

2° I conceive it better to arrange them as they possess the astringent principle in a greater or less degree — & first

Barks of the Oak - Cortex Querci.

Cullen used the Bark in slight tumefactions of the membrane of the Fauces, & in Intermittents. Roasted or Toasted Acorns have been used in Intermittents & Diarrhœa, but they possess little Strength. America affords the most valuable Oak Barks — There are various Species. — I have employed them in Gangrene, & found them equally as good as the Peruv: Bark — They are better on acct of the facility with wh they may be procured. I

o Quercus Ilex of the South of Europe.

† of the Cynips genus. There are two species of this genus, which deposit their eggs on opposite sides of the oak leaf.

The last galls are those of Aleppo.

scarcely know wh of the American Oak Barks to recommend as a substitute for the Peruvian - From the large quantity of the extracted matter wh the black Virginia Oak contains I wd not recommend that. The Spanish and Chesnut Oak Bark I think the best. I generally employ it externally. —

Pulverized Acorns have been used in Epilepsy in Germany

Galls. —

These are excrescences found upon the Oak Tree. They are produced by insects wh wound the young buds or branches, & deposit their eggs in the wound. This is done in July - Some of the juice of the tree exudes fm the wound, & the callous edge of it increases to a Tubercle, wh serves as a nest for the egg of the insect - After the egg is hatched, the Animal eats its way thro' - Those galls wh have no holes in them, are found with the insect inclosed. - Galls

or those vegetable protuberances possess a bitter acerb taste. Spirit of wine & water, extract the astringent principle, the extract is a powerful astringent, & has been recommended in many diseases —

Baudalogue used it in France during the 18th Century in Intermittents. Fourcroy has shewn that the recommendation has not been universal. Galls are not as prejudicial in producing obstructions as has been supposed — His opinion is highly erroneous, for they often Purge as I myself have witnessed. — The Galls of this Country are weaker than those of the Old Country — It is said that the worst Diarrhoea's & Dysentery's have been cured by a decoction of our Country galls, adding good sound brandy.

Flatus occasioned by a relaxed state of the Intestines has been cured by 10 grs of Galls to ℥iv of water. A tablespoonful the dose, to be repeated pro re nata. It Purged in-

stead of producing constipation or obstruction. VI or X grs of Galls is a sufficient dose. —

Hemorrhoids. Dr Bell recommends equal portions of pulv: galls & hogs lard as an application to the Piles. This is too strong — Dr Cullen used one part of galls to eight of lard, but this is too weak. This Ointment is used for the Piles in Scotland, & is a most excellent application when the Piles arises from a Torpor of the Intestines, but in Plethoric habits, & when febrile symptoms exist it is highly injurious. The Y. Fever, or high toned Bilious Fever, always produced Piles in those who never had them. — attend to the distinction of Piles into the Relaxed & Febrile — In the former I have given Rubigo Ferri, & Rhubarb, the last to prevent Costiveness

In Gleets & Gonorrhoea, galls are often useful. Sabiedaur recommends an injection of a weak solution of Galls.

This is a parasitic plant. The seeds of it are deposited on the branches of the different trees mentioned with the expectation of a profitable kind.

Mistletoe.

This is attached to the Oak, Apple & some other trees, but is never found in the Earth — The Mistletoe is formed by the mother tree, & is thus supplied. —

Its Properties are precisely the same on whatever tree it grows, whether on the Oak or the Apple. They are the same if it grows on trees destitute of astringency. Its properties are formed by the living powers of the plant itself. —

The Mistletoe absorbs Coloured fluids injected into the limbs upon wh it grows — It is a very powerful astringent, & is properly applicable in all those cases in wh other astringents are employed. It must be confessed that many imaginary virtues have been ascribed to it. The Bark has been used from ℈ss to ℈j in substance for a dose, but it does not give out its virtue in solution.

The whole of the Mistletoe has been employed, but the Bark is the part generally used. The Mistletoe in common with other astringents has a bitter taste. Sir Jno Forbyce used it in Quartan Fevers. It has been strongly recommended in Epilepsy & particularly that kind depending on Debility. Dr Sloane employed it with much advantage in one case in the Infirmary of Edinburgh - Dr Bradley recommends it in Hysteria - I have known it employed with success in Epilepsy +

Gum Kino. -

This is an important Medicine. Its Botanical History is but imperfectly known - Some have spoken it to be a native of the interior of Africa - More probably it belongs to the Sea shore of So Carolina. This astringent is blended with sweetness, is soluble in the Saliva of the

mouth, to wh it imparts a red colour, is destitute of smell, & is soluble in water, & spirits of wine. Kino imparts a greater colour, & stronger impregnation to the last than the first. It strikes an intensely black colour with the Sulphate or Oxysulphate of Iron. It differs from the Sanguis Draconis, as the latter does not strike this colour, & is not soluble in water. —

The Tincture is prepared by rubbing of G. Arabic & white Sugar with it gradually adding water. ℥i of Kino will take up ℥10 of water —

Formula of the Tinct

℞ Gum Kino —— ℥j
G. Arabic — — ℥i
Aq Font: —— ℥x

D^r Ettengill has recommended this in Intermittents. I have used it with Columbo & Gentian, & have found Intermittents yield to it wh had previously

resisted Bark Arsenic &c

Spirituous Tinct: of Rhino

Pulv G: Rhino — ℥i

Diluted Alcohol — ℥ xii Digest for 7 days & Strain thro' paper. —

My Formula is as follows

Pulv G: Rhino — xl gr

Pulv Gentian Rad lv grs

Pulv G: Opii — ij gr Rub together & divide into 8 doses — 4 or 5 of which may be given in 24 hours. — The time of its exhibition is during the Intervals of the Paroxysm. — Thus much for its use in Intermittents

Hemorrhages. Rhino has been recommended by Dr Cullen in Hemorrhages & Diarrhoea. Drs Cullen & Fothergill have both been disappointed by it in Fluor albus. I have at times used it with advantage. A German writer has

× into the Uterus

Mr Benjamin Bell

Kino is said to be the most valuable of all the astringents in Diabetes

A great objection to the use of Kino in gonorrhea is on account of its colour. It cannot be used when secrecy is wished for.

A great objection to the use of Kino in Gonorrhea is on acct of its colour. It cannot be used when secrecy is wished for.

4 pilules dorus. Lapt vesan. secundo quaque hora.

× This disease is very common in the U States, & always appears most in moist countries

recommended it to be dissolved in lime water & injected*. Dr Bell approves of it in Gonorrhœa — The follow[g] is his Formula —

Pulv Gum Kino — 15 or 20 grs
Pulv. G. Arabic —— ℥i
Aq Font —————— ℥6 or 8. Mt
et ft. injection — This I have found useful in 100 cases — It has effected a cure when all other remedies have failed. It is invaluable in old Gleets — as far as I know, I was the first who employed it here. —

Dr Pemberton who has lately published a treatise on Kino, speaks in high terms of it — His Formula was as follows. —

℞ Gum Kino gr x
Purified Opium gr i
Mucilag G Arabic Q S. et ft
+duas pillula Cap / unguam duas horas

This formula the Dr advises in Water Brash
Dr Barton thinks favourably of it. —

Mimosa

Extractum Catechu, or Terra Japonica. —

Procures from the Mimosa Catechu. Its Colour is a dark red. It has an Astringent Bitter taste, & but little sweet. It is composed of Gumming matter, & is Soluble in water. It is seldom employed in the U. States

It has been recommended in Diarrhoea, Dysentery, Fluor Albus, Uterine affections, & it is used in Europe in an Overflow of the Catamenia. An Ointment much celebrated in Hindostan, of wh this is a principle ingredient. Astringents are often certainly good in old ulcers, & they must prove so by their Stimulating qualities, by Stimulating the parts to a more healthy action, to secrete good pus. Astringents are also beneficial in wounds where there is dead matters by Stimulating the dead fibres.

℥ij of Gum Resin & ℥ij of Cinnamon, diffused in ℔ss of Wine is a good Formula. astringents

(Astringents have been lately employed in Water Brash.)

Formula of Spirituous Tincture

Extractum Catechu — ℥iij
Cortex Cinnamon — ℥j
Diluted Alcohol — Oiij Di-

gest for 10 days & Strain. —

We come now to Speak of our

Indigenous Vegetable Astringents

Geranium Maculatum

or Crow Foot. The root of this plant has been used with much advantage in Cholera Morbus, & Cholera Infantum. It has been much used in Lancaster. The root shd be boiled in Milk, & the child may drink as much as he wishes, as it is not necessary to be very nice about the dose — My own experience of this Article is not great; but it comes strongly recommended

by D. Hand — I have found it useful in those cases in wh I have tried it. — Astringents I think have not been sufficiently tried in Cholera — It is certainly a nice subject, for fever at first does exist, but after it is abated they must be highly advantageous. —

Our plant has been much recommended in Hemorrhages, under my care it has not been very advantageous. But Dr Wilson confers high encomiums upon it — The Indians resort to it in these cases — It is procured in May. —

Heuchera Americana, or

Alum root — This plant grows here, & in Ohio — Its root is powerfully astringent, & is the part employed. — The powder formed the Basis of the famous Martin's Cancer Powder — I do not think it ever cured a genuine Cancer; but it may have cured

obstinate Ulcers wh have been mistaken for Cancers. — We learnt it frm the Indians, who applied it to wounds, Ulcers, Cancers &c. —

Cortex Granitorum. — Rind

of Pomegranate, is a tolerably good astringent, & may be used in many cases in wh other astringents are employed. —

Rubia Tinctorum — Madder.

This is much more interesting as a Colouring matter than as an Astringent. It tinges with a red colour the bones of all Animals on wh Experiments have been made by it. By omitting & giving madder alternately to a Pig we are enabled to judge of the increase of Osseous matter in the bones frm the different layers of red & white. It is also said to colour the Cartilages. —

Of its Emmenagogue properties, more here

after. It changes the health of all Animals & makes them sluggish. It has been used in Rickets, but I know of no experiments to shew its virtues here. As to its use in jaundice, I doubt much if it be of any advantage. This complaint depends on a Biliary concretion in the Biliary ducts, (at least very often) And madder I apprehend is incompetent to the evacuation or solution of these stones. It may have come into notice by having been given just before the falling out of the stone.

Rationale of the Operation of madder in colouring bones. We can only accot for this effect by the Chymical Analogy of a double Elective attraction. The blood, or rather the serum of the blood, holds muriate of lime & phosphate of soda in solution. The colouring matter of the madder is also held in solution in the lime, & meeting with the Phosphate of Soda, the attraction

takes place, & the Phosphate of lime is precipitated with the madder. —

Argentina, Wild Tansey, Silver weed. — Dr Cullen & some other Authors have placed this among the Astringents — It is however of minor consideration

The Fruit of the Persimmon before it is ripe is a powerful astringent

A species of the Wood Cherry. I might also mention

I pass over the Orobanche

Tormentilla Erecta,

Upright Tormentil, or Septfoil. —

This is a vegetable astringent, It grows in different parts of the Old world. The root is the part employed — It is used in Tanning in Italy. It has been employed in Intermittents, & is recommended as a

substitute for the Bark in combination with bitters. Dr Cullen has found it beneficial in Intermittents both alone & when combined with Gentian. We do not know but that it may be a native of this Country. It has been recommended in Abortion depending on a general relaxed state of the System, but especially in a relaxed morbid State of the Uterus. This is the unfortunate lot of those who are subject to the Fluor Albus. And Astringents & Tonics seem highly proper

Arbutus, Uva Ursi, or Bears Whortle Berry. This is a good astringent in some cases. It is found in different mountainous parts of this Continent, particularly in this State. It is to be found on the hills in Jersey about 20 miles from this place. I think it useful in chronic States of Gonorrhoea & Gleets. Also in some

cases of Diarrhoea & Dysenteric affections.

Formula. —

℞ Fol: Uva Ursi — ℥ij
Aq: Font: — — — — ℔ij Make
an infusion & drink at pleasure. We
shall treat more fully of this Article when
we come to the class of Antilithics

We have now done with the Vegetable Astringents, & proceed next to the Consideration of Alum. —

Alum. —

This is a neutral Salt. It is formed by the combination of Sulphuric Acid & Alumine & Potash. It is called in the New Nomenclature Sulphate of Alumine

Alum is abundantly diffused throughout the earth. There are great quantities of it in Pennsylvania, Maryland, & on

the Potomac near Fort Cumberland. A child may collect many pounds weight of it. It was formerly supposed to be an ingredient in Mineral Waters. Hoffman attempted to call this in question, & it is now known not to be common in Mineral waters, tho' it is sometimes found there. The Sulphate of iron has been mistaken for it. —

We know Alum to be a powerful Astringent, in some Countries it is used in Tanning leather. We come now to speak of its External & Internal use as a medicine, & first —

Of its Internal Use. —

The Girls in Europe are well acquainted with this. It has been much advised in Intermittents in combination with Nutmeg & other Aromatics. D Cullen amongst others has tried it & found it to prevent the Paroxysms — Lind says next to

the Peruv: Bark, there is no better med: in Intermittents, than Alum in combination with Nutmeg. —

Swediaur says he found alum in doses of 5ss V to VIIj ℈ in Conjunction with Camella alba to be peculiarly useful in the Intermittents of Antigua. It appears to be particularly adapted to Hot climates hence we may reasonably suppose that the intermittents of Georgia & So Carolina wd more readily yeild to it than those of Pennsylvania? —

In the Putrid Bilious Fevers of So Carolina, attended with large & watery Stools, Chalmers found a strong decoction of Seneka Snake root, & Oak Bark with the addition of Alum highly useful. I strongly recommend this work to yr perusal, it possesses much merit. I have employed Alum in Intermittents in Combination with Columbo & Gentian

given before the Paroxysms. But it sometimes occasions disagreeable effects on the stomach so as to prevent our persevering in its use

How does it cure disease? Darwin says it cures only those seated in the Intestines. Its virtues are enhanced by Combination

Cholera Morbus, In this & Cholera Infantum, alum in union with G: Arab: Sugar & Laud: is useful. —

Hemorrhages. Cullen, Friend & fifty others have recommended alum in Hemoptysis, Uterine & other Hemorrhages. Cullen say, he has always failed when the Hemoptysis has been an active hemorrhage. — In such cases, some Astringents as Sacch: Sat: are highly useful. Stimulating Astringents are certainly injurious. In Uterine Hemorrhages alum has established its reputation by the

concurring testimony of many Physicians. — As early as 1691 we find it highly spoken of by Helvetius. Van Helmont has added his testimony also. — Its combination with Sanguis Draconis (which was the Formula of Helvetius) altho' highly recommended, appears to be undeservedly so, for in that form it is insoluble in the Stomach, & hence must be nearly inert. — I think with Dr Cullen that the Sanguis Draconis prevents its Operation. It was called "Pulvis Stypticus" in the London College — They have added Gum Kino

Menorrhagia. Alum ought to be given in small doses, when they are too large it purges. It has been used from 5 grs to ℈j Dr Thompson has published an acct of his success with the Pulvis Helveticus in Uterine Hemorrhages, frequent menstruation, & flooding — He gave equal

parts of the Sanguis Draconis & Alum every half hour. His doses were too large. Now we have mentioned the frequent Menstruatio, we may observe that the Stimulating & Tonic plan, does not form the proper treatment, & that gestation either in a vessel or a carriage, vegetable diet, & change of climate, are far more adapted to this complaint I shall mention hereafter my success with Ipecac: & Lead. I have given in Menorrhagia, Alum - - - ℥i

Pulv Galls - - ℥ss mixed & divided into 10 doses with much success, if it Purged, I added Laud:

Scorbutic Hemorrhage. We can here recommend Alum - In Scorbutic Gums in the form of a Gargle it is also useful. - Thompson has recommended the Pulvis Helvetic in Leucorrhoea

&c

Dr Cullen has been disappointed in its use. I wd recommend it conjoined with other medicines — We shd however attend closely to the Pulse for it is frequently a febrile disease. This important distinction in Leucorrhœa was first given by Darwin, I strange it is, that he himself appeared by some of his prescriptions to overlook it. I always inquire if aliment increases the flow, if it does, then I am certain the astringent plan of treatment will be successful —

Chronic Leucorrhœa will bear a generous diet — In this last form, Alum is beneficial. —

It is as we may suppose adapted to Gonorrhœa. The follow[g] is a good Formula.

℞ Alum — gr[s] 12
Aq Font — ℥iv Mix & inject — a syringe full to be injected 6 or 8 times a day — Alum, Galls & Oak Bark make a good injection

Bell used the follow[g] —

Oak Bark — ℥i
Alum — ℥ß
Aq Font — ℥20 M dissolve & boil down to ℥16, & use as before directed

Diabetes — Dr Reid has recommended Alum in this Complaint — If my opinion of this disease be correct, I doubt if it be so generally applicable as has been supposed. Dr Christ cured one case of Diabetes by Alum whey. Dover says I know of nothing else to be necessary in the cure of Diabetes, I have says he never known it fail for 45 years. It is more agreeable to my feelings to suppose that Dr Dover met with none but those cases it depended on debility, than to doubt his veracity. Inflammatory symptoms do however often exist, & here it must be injurious

Diabetes is often complicated with Bilious fever. A man who passed 20 pints of Urine a day was cured by an Emetic which carried off a quantity of Bile. —

How does Alum act? Darwin says by exciting a natural action in the Abdomen & bladder. I think by its astringent & tonic power.

We come now to its External use. —

External Use

Gargles of Alum are used with much advantage in relaxations of the Uvula & by manche Tonsillaris. It is also much used in this form in Putrid Sore throat. Its external use in Hemorrhages is not sufficiently important to render it necessary to dwell upon it. In Inflammation of the Eyes, both ancient & modern experience prove it to be good. — Cullen preferred it in Ophthalmia Membranum to either Vitriolum Alb: or Sacch: Sat:

Preparation of Alum & its Doses

Coagulum Aluminosum is made by irritating the white of an Egg with a piece of Alum. It has been used in Scorbutic gums by way of Gargle. In Chronic inflamma-

tion of the eyes, this Coagulum shd be applied spread on soft tow. It is not applied to recent inflammation. In an Epidemic Opthalmia, it was found good. In the disease affecting the prepuce in Children, it appears to be a dropsical swelling of the prepuce, a strong solution of Alum in water was the best thing I tried. I used punctures & lead without effect. In this disease there is an enlargemt of the prepuce, & a discharge of Serum. It occurs in children too young to have any Venl affection. Alum whey is made by boiling

℥ij of Alum in

℥16 of Cows milk. The uncertainty of the dose is an objection to this preparation. The dose of Alum in substance is frm 5gr to ℈j. Small doses often repeated, are much better than large ones, as they cause vomiting.

Alum has been said to produce costiveness & even Constipation of the Bowels, but

on the contrary we know it often purges. —

To account for its modus operandi in stopping Hemorrhages is difficult, but it certainly acts in part by its astringent power. The effects of Alum produces on the Pulse has not been sufficiently attended to. I expect its effects are similar to other astringents. Alum often purges in less doses than Darwin says produces constipation

Lead. —

This is a most important article. I have been at a loss where to place it. Dr Cullen places it at the head of Astringents, perhaps it wd be better classed under the head of Tonics. To this there may be also some objections. In my former Lectures I made this arrangement. I now place it last on the list of Astringents. — I shall speak on

I Of the principal Preparations of this Metal
II Its operation in inducing diseases. &
IIId. Of its uses & Modus Operandi

Lead is extensively diffused. It is common in the U. States. Accord.g to Newton it melts at 516° of Farenheit. Murdon shews that 540° are necessary. At a greater heat it boils & evaporates. It is favourable to the growth of Vegetables by destroying insects. It calcines with great facility; a further calcination produces red lead; if carried further glass is produced. Litharge, is lead in a half vitrified State. The preparations of lead made by contact of fire are not used in Medicine — White lead is used as a Pigment It is Carbonate of lead. —

By exposing plates of lead to the Acetic Acid, the Acetate of Lead, or Sacch. Saturni is produced — It may also be formed by dissolving lead in the Acetic Acid — In whatever way it is produced, it appears like small

needles, is sweetish to the taste, not disagreeable, & produces a discharge of Saliva. It is sparingly soluble in water, if the Acetic acid be not in excess. —

Goulards extract is made by adding 1 lb of Litharge to the same quantity of vinegar. Let it digest an hour & a half, & then decant the liquor, & let it Cool.

Effects of Lead. —

One of the dreadful effects of lead, is that of its producing Colica Pictonum either when taken internally, or applied externally. Palsy of the limbs also sometimes takes place; but I think lead is by no means the sole cause, altho' it may be the common cause. — New Rum running thro' leaden pipes; or Wines adulterated with lead produce this disease. A Wine Merchant of Venice is said to have killed 60 men. Some assert that ½ ℔ of lead to a gallon of wine, will produce this disease of Colica Pictonum. But Coli-

ca Pictonum is produced by the Vapour wch flies off from the Lead, so that this complaint is not always the effect of its being taken internally — Painters are also affected with Obstinate Constipation by using heated Types wch are made in part of lead. In workers in Lead mines, we find that it does not produce this complaint & Constipation unless it has acted on the System for a long time

Dr Monro says that in all the Hospital Cases, the patients had been long exposed to its effects. I have known fresh painted doors produce Headache. —

The cure of this disease is to be effected by emptying the Bowels. Bleeding is not often proper, tho' I use the lancet in a tense pulse — Crystals of Tartar & Castor Oil are to be used, the last is the best. After the bowels are opened, Opium shd be given to relieve the pains — This at times acts as a Cathartic. Cold water dashed on the extremities frequently produces

evacuations immediately – I have used Gum Guiac with great advantage. The warm bath is highly beneficial, I've frequently find a Salivation an essential remedy. Colica Pictonum is not always induced for we often find Rheumatism existing for this cause.

How is Colica Pictonum & other diseases produced? The finely volatilized parts are taken in with the food, as in certain lead mines in Hungary producing these diseases. This was prevented by eating Hogs lard on the bread; afterwards there was no attack of this kind – A Potter in this City effected the same thing by giving his workmen fat broth. —

I have thus acquitted the preparations of Lead for the charge of having produced those very deleterious effects ascribed to it by some. – Sir Jno Baker stands at the head of these declaimers. The Pallid sickly Countenances of the inhabitants of Cider Countries have been ascribed to Lead, while there was

no lead used. In me, Cyder produces a Swelling of the Wrists. & many affections similar to those produced by lead — I directed a Student of mine once to weigh out Nitre, Tart: Emet: & Sacch: Alb: instead of the sugar he put Sacch: Saturni (15 grs of it) it was taken by the Patient (a Lady) On learning the mistake, I with Anxiety & Apprehension waited for its effects; but no Colica Pictonum occurred & the bowels were not constipated — I have known 28 or 30 grs of Sacch: Sat: to be taken without any ill effects — Thus I am warranted in exculpating lead from those heavy charges so unjustly laid against it. Two Smelters boiled their meat continually on Pigs of lead, & as it imparted a Sweetish taste to their meat, they could not be persuaded to discontinue the practice, as never proved injurious to them. A Gent: who was accustomed to relieve the Heartburn by swallowing his Saliva — to

increase the flow of this secretion, he observed bad without any bad consequences - such: Sat: in doses of ℈ss to ij ℈ vomits and Purges instead of producing Paralytic affections of the intestines as ascribed to it by Dr Fordyce. -

I have thus given a History of the preparations of lead, & the diseases induced by it, when volatilized & in a Metallic state. The Volatilized parts are conveyed into the Stomach by the mouth, in those working in Potteries & lead mines. - The Topical application of Lead I have shewn does produce diseases, as in Rheumatism by using hot leaden Types. The Acetate of Lead does produce Colica Pictonum, but too much has been ascribed to it in this respect. In the reign of Henry VIII an Epidemic attended with Colicky pains existed among the Country people wch was ascribed to the lead in Cider, when no lead was used - It arose from the Ci-

der. The Malic Acid both in the Cider & Pippin is productive of much mischief. —

Lead is not unfavourable to the growth of vegetables, the finest wheat grows on lead mines, & the volatilized lead wh falls to the ground like Soot, called Bellin, is very useful to Vegetables. —

Diseases in wh Lead is used.

Its external application in the form of Goulard's Extract, as a discutient to the parts has been used in Hernia Humorralis. It has been used as a Collyrium in Inflammation of the eyes. In some Scrophulous inflammat^{ns} it must have been injurious. It has been used in Fistulous sores, in Gonorrhoea & Gleets. Goulard has ascribed a thousand other good qualities to his extract. The Erysipelatodes Inflammat^{n} wh occurs in old people must be increased by the use

of lead, as it lessens or destroys the Mobility of the parts. Darwin says lead is highly proper in Erysipelatous & Amasarcous limbs, but I repeat it, it shd be used with much care, for if the disease be too suddenly repelled, it will cause a translation to the internal parts. Saunders found lead prejudicial in Erysipelatous Inflammation tending to Gangrene. It is better in inflammation from external than internal causes. Lead has been used in Burns where the parts has not been too long flaccid.

Scrophulous Ulcers. I do repose much confidence in the use of Lead in Florid Scrophula in Florid constitutions. But where the constitution is Hectic much harm must arise from its use. Gonorrhoea Injections of lead in this disease are often employed with the most decided advantage. Sometimes however we find it injurious. I seldom venture

beyond gr x to ℥viij of water. In recent cases, I use 3, 4 or 6 grs of Sacch: Sat: to twice the quantity of Vin: Alb - when made stronger, the running is stopt too soon, and Hernia Humorralis may be produced. Some people have such a tendency to Hernia Humorralis, that it is impossible to employ the saccharine injections at all. In old & Chronic Gonorrhoea's I have used ℈j of Sacch: Sat: to ℥j0 of water - River or rain water shd be used. Astringent injections shd be mixed in the Geranium or other similar substances. - From 20 to 40 drops of the Vinegar of Litharge to ℥8 of water has been used. But the Sacch: Sat: when pure is by much the best. It is however often so impure as not to be dipolved. In Hernia Humorralis it is common to apply lead by means of a crumb of bread made into a Poultice. I find a strong Solution of Glaub: Salts preferable. Injections of lead in Leucorrhoea are often beneficial.

We come next to speak of the

Internal Exhibition of Lead

It is unnecessary to follow any Methodical arrangemt of the diseases in wh lead is used; as I formerly placed this Article under the head of Tonics — first in

Intermittent Fevers. I do not speak here fm my own experience. Etmuller used lead in combination with Sal. Ammoniac in obstinate Quartans, & he says with much success. When Arsenic fails, lead may be used, particularly in Apoplectic Tertians. I used lead in 1864 in combination with Kino in 3 different cases of Intermittents. It shd not be indiscriminately used in Intermittents. I wd try it after the failure of the Bark, Arsenic & Blisters. I will speak of Apoplectic Tertians more particularly when treating of Bark.

Epilepsy. The use of Lead in this

disease is not a new practice. Dr Rush used it with advantage in the Hospital, altho' a cure was not effected. I afterwards gave Stramon: with decided advantage. After the lead produced an affection of the Bowels, the Epileptic fits was in once case stopt. I do not think it promises as much as some other medicines, for in Epilepsy the tonic plan is often necessary, & to derive these effects from lead, it must be continued so long as will probably injure the Constitution.

Pertussis. L. C. recommends Lead here. I have no experience on this subject, nor do I think it can be safely followed for to be beneficial it must be used a length of time, that the Constitution won't bear.

In some Foreign Journals we find it recommended as a new practice, but it has been used two Centuries ago in this Complaint.

Tetanus. Dr Hunter recommended lead in this complaint. He thot it to be a

disease of excessive & inordinate action, hence he says, were I afflicted with this disease, I wd transport myself to Nova Zembla, or occupy an Ice house. I do not positively say that Lead is injurious in Tetanus, but my Ideas of this disease wd not lead me to adopt this treatment. C— ascribes great efficacy to lead in this Complaint, but when we consider his small doses, not more than gr. 1 or ij a day, it is not probable that the cure depended on that Article. I wd rather ascribe the recovery to nature. —

Sacch: Sat: has been recommended in Mania, Melancholia, Hysteria, Hypochondriasis, & Nymphomania. — In Mania Hoffman employed it in conjunction with Camphor. In none of these diseases have I had any experience of the effects of Lead. Morgani in his 5th Epistle on Madness, speaks of lead as being very useful in Mania — His Authority is high

Cholera Infantum On this subject used to read you a letter fm Mr Gray — but I have mislaid it — He found it beneficial — I have never given it to children under 6 yrs of age. —

Diarrhea. Lead is used here with decided advantage, in combination either with Kino, or Laud: at times

Gonorrhea With what success the internal use of lead has been attended, I know not. — Lead has been used in various other diseases. In 1700 Hunter Parke published a dissertation on the Salutary effects arising fm the Internal use of Lead. He used it in Phrenitic Delirium & Peripneumony & if we can believe him, his success was very great — I am afraid to tell you, for fear of yr follow[2] the practice, that lead diminishes the force & frequency of the Pulse in Inflammatory fevers. It reduces it fm 108 to 70. —

Pulm: Consumpt^n Lead has been employed in this Complaint. D^r Hinderham ~~said~~ out of 17 patients he cured 6 by it, & that the other 13 were too far gone for any med: to have arrested the disease. I wish I could say something satisfactory on this head. I have used lead in the Spitting of blood w^h occurs in Consumption but never in general Consumption — It might answer in the sweating stage — But in this disease I have had no experience. —

In Water Brash. No one has ever prescribed the preparations of Lead in water Brash. I think it highly probable that it might be used with very good effects, in combination with Kino! — I have never given it a trial, but was a case now to occur I wd certainly make the trial. —

In Hemorrhages of Red Blood. The use of lead in Hemorrhages is not a new practice. The publications of Sir Gy^s Baker

& Mr Harveys observations occasioned a long pause in the use of lead. They certainly have greatly exaggerated its deleterious effects. Dr Haberdeen speaking of Hemorrhages says "Of all Med: Sacch: Sat: is entitled to the appellation of Specific in Hemorrhages - However continues this writer, probably the good will not counterbalance the bad effects arising from its internal use" Mr Baker had influenced him too much -

Mr Murray says Lead is a violent poison. Dr Reynolds in a letter to Mr Baker mentions the Utility of Sacch: Sat: in Hemorrhages - 20 drops of the Tinct Saturni says he, immediately lessened the Flux in a woman - & in 7 Patients labouring under Hemorrhages of different kinds, I always used the lead with advantage, & never found any Colic to occur. Keeping this in view Gent: I hope some of you will give the preparations of lead a trial. In

& with evident Advantage

Epistaxis, in common with other Hemorrhages you will find it beneficial. I recommend it to you from my own observations. Sacch: Sat: is the only preparation I have employed. It is not only less dangerous than has been commonly supposed, but in many cases it is a most important, in fact an indispensible remedy. A child of 7 or 8 yrs of age who was under my care, was siezed with an Intestinal Hemorrhage after Dysentery. I used Pomegranate Rhell & other Medes in vain, nor could I effect a cure until I used Sac: Sat. It cured a case of Phthisis of the Lungs when 1 gallon of blood was discharged per Annum — I have employed lead in all cases of Hemorrhage, & I declare to you never with the smallest injury

Mr Coop who laboured under Hæmoptysis, had bleed & &c prescribed for him without any effect. ℈j of Sac: Sat: rub'd down

with ℥j Arab, & divided into 10 doses, one given every hour effected his cure. He never had a return of his disease, nor did he experience the least disagreable effects. I have used Sac: Sat: in Epistaxis with great advantage — gr. viij was the largest dose I ever gave, & that I gave in Epistaxis, & it cured the disease. —

In the latter part of the Autumn of 1805, I attended a Mr Hart labouring under a Malignt fever; I found his pulse sinking remarkably fast, & was entirely ignorant of the cause of this astonishing prostration of his pulse, until a little Artless girl who attended him, informed me that a great deal of blood came away with his Stools. I satisfied myself of the fact by examination, & found that he did not pass less than ℔j ℥j of blood in 4 hours. I had immediate recourse to Sac: Sat: & saved his life by the follow.g Formula,

for no other med: I believe wd have done it.

℞ Sacch Sat: grs viij
Gum Opii grs j
Ipecacuanha grs iv
Sach: Album grs x Mixed &
divided into 4 doses, & taken pro, re, nata.

Another ℞ -

Sacch: Sat: ——— grs viij
Gum Opii ——— grs ij
Ipecac: ——— grs vj
Sac: Alb ——— grs viij M

You see I use the lead in combination with Ipecac: This I most earnestly recommend to you all as a most excellent Antimenorrhagic. —

Uterine Hemorrhages. Bleed will not answer as well as Sacch: Sat: & this last reduces the pulse as well. I saw a lady labouring under a Uterine Hemorrhage with a hot skin & tense pulse. She refused to be bled, & I resorted to lead with

with complete success. It reduced the hot skin & tense pulse, & cured her. Lead is adapted to both active & passive hemorrhages - I have used it most frequently in the former. - Lead has been found very beneficial in Intestinal Hemorrhage, occurring at the decline of Typhus. —

Abortion. May lead be used with advantage with an Antimenorrhagic view to prevent abortion? I answer confidently, Yes — I was called to Mrs — who was almost pulseless, & on the eve of Convulsions. I gave her gr. vj of lead, & in less than 6 minutes by my watch, her pulse rose, & in a few minutes more she was able to tell me I had saved her life — The Hemorrhage was stopt, the Uterus retained the Child until the proper time of delivery & the child is now alive. I combined Ipecac: with the Lead. Mr Burns says it has been proposed to

give astringents internally to prevent abortion, but he observed they produced sickness — This is totally incorrect. —

Mrs J. had the catamenia at 12 yrs of age — the quantity discharged was nearly the same for a number of years, but at length the returns were more frequent & the discharges more copious — She had tried a vegetable diet & every thing else. I gave her among other preparations of Iron the Vinum Chalybeatum — this increased it — I put her on Sacch: Sat: in combination with Ipecac: — Its exhibition was always attended with manifest advantage — Nay such was its efficacy that 1 gr wd stop it in 30 minutes. — She wd have lived had her circumstances permitted her to enjoy the benefits arising fm gestation or a voyage. After a time the lead had no power on the bloodvessels, & then I had recourse to Ipecac. —

Uterine hemorrhages are active, or in other

words are attended with great Arterial ex-
citement — In the greatest degree of Muscular
Strength, Iron & are improper, & Sac: Sat: &
Ipecac: are our best remedies — Tonic Reme-
dies are there hurtful — Digitalis has been
used but it is improper. Sac: Sat: & Ipecac:
two med: so different, in hemorrhages ex-
ert one common effect; or in other words act
together. — Dissection shewed the Uterus
of the Woman whose case has just been men-
tioned to have been so monstrously diseased,
that the lead must have exerted surpri-
zing effects indeed to have checked the He-
morrhage ——

I have already informed you that I have
not employed lead in Cholera, but Dr Guimes
has used it in Uterine Hemorrhages, Diar-
rhoea, & Cholera — He gave grs vj — He also
mentions its Salivating effects — This I have
always made mention of in my lectures —
not that it has occurred to me, but on the

authority of Professor Flemburg. From the success we has attended me in the internal use of Lead in Hemorrhages. I earnestly recommend it to you - I think it particularly adapted to Uterine & Intestinal Hemorrhages. —

From the power we the preparations of Lead have in propogating their effects to the most remote parts, we find them useful in stopping Hemorrhages of the Lungs - And in fact Hemorrhages of the most unmanageable kind. — In no case has lead failed to do good, in most it has been completely successful, & in none has it ever been hurtful.

In one case of Uterine hemorrhage, Fever ensued occurred after the use of the lead, but neither the Patient or myself attributed it to the lead. — In these cases my experience has been as great as that of any Physician in this City. — Cold applications of water & Ice have been much recommended, but lead is certainly superior, we

find the former often fail, & know the latter seldom deceives us. In 1795 I was called to Mrs — who discharged a great quantity of blood — Ice & cold water were used both externally & internally: & internally locally by means of water thrown up the vagina by injections — So much was she depressed, that I had to stop the application of these sedative agents, produce warmth by friction, & then recur to them again. Probably iv, vj or viij gr of Sacch: Sat: wd have given me a much better command of this uterine Hemorrhage, than the ice & cold water did. Do not suppose however, that I mean to exclude ice & cold water altogether, they are often important remedies

Modus Operandi of Lead.

It is accomplished in some measure by reducing the activity, frequency fulness & tension of the Pulse, as Digitalis & bleeding do — for Digitalis has been much used in active

hemorrhages. Saturnine remedies are most useful in active Hemorrhages — In Hemoptysis they are very useful. This however is not the whole of their operation, for lead is better adapted to active hemorrhages that V.S. & Purgs & reduce the pulse more. The Pulse is also more reduced by Digitalis, yet it is by no means so beneficial as Lead. Lead is also good in discharges from the Uterus as Leucorrhoea. In specifying the properties then by which lead acts, we must have recourse to some other property than that of lowering the Pulse — I think that it acts by its Astringency also — I am not prepared to say how lead stops hemorrhages, altho' it exerts astringent powers both on the dead & living body; & it certainly does act partly by this power, yet we can't say that its effects are produced wholly by it —

Probably its effects are exerted on the Stomach & communicated thro' its medium

to the different parts of the System. —

If Sac: Sat: be such a remedy as I have recommended it to be, I have reason to exult, for from this chair I have made known its virtues to the Gent: composing my class.

In 1796. since I read my Lectures here, Sac: Sat: has excited much attention — Many have followed my steps, & they have borne testimony to the efficacy of Lead. —

As the effects of Mercury & Lead are essentially different, & as mercury has been supposed to be the best remedy for those diseases &c. are produced by lead (as Colica Pictonum) so it has been said that lead is proper for the diseases induced by Mercury. In profuse salivation &c. is true fever. I generally depend on large doses of Opium — May not lead be used here with advantage, as it is employed in other diseases, & as this is a true fever? I think it might — I always combine Opium with Lead when I exhibit it, but generally

in small portion fm 1 to IV grs I wd advise you to follow my plan in this respect, for I think Opium will prevent those deleterious effects ascribed to lead. In London Dr Reynolds found the exhibition of Lead to be attended with unpleasant effects, before he combined a portion of Laud: with it, & after this precaution these effects never occurred. —

The Dose of Lead shd be regulated by the age of the Patient, the nature of the disease, & the Constitution. Considering the nature of our Med: Caution is requisite in its exhibition. We ought to begin with small doses. The largest dose I ever gave was grs viij - It was combined with one gr of Opium, & I had no cause to regret my Intrepidity. Dr Jones of this City gave a lady in Uterine Hemorrhage 5 of Lead. — Very small doses will check a hemorrhage with great facility. Some

of the effects of Lead, are yet to be treated of. Its salivating effects we shall mention hereafter. —

This Gent: finishes the Subject of Astringents — I said that it was my Opinion that many Articles classed by Dr Cullen under the head of Astringents might with propriety be placed under that of Tonics. Every astringent is endued with some Tonic property — I have placed under the head of Astringents those articles most decidedly characterized by Astringent Qualities.

I proceed in the next place to treat of the Class of Tonics —

Tonics.

Dr Cullen observes that Tonics are those substances wch by giving firmness & strength to the whole System, & thereby to particular parts, have an effect Analagous & similar to Astringents. —

Dr Darwin in his arrangemt has placed Tonics under his 4th Head, viz the Sorbentia. He objects to the term Bracing as being too mechanical & more applicable to Drums. Bracers & Tonics are I confess rather mechanical for our purpose, but I see no impropriety in the term, particularly as custom has for such a length of time affixed to it its sacred Seal. Gregory objects also to the term Tonics. He professes allows its effects of producing Tension, but he says as other effects are produced, the

term Roborantia shd be used — I am indifferent wt term is used, but myself prefer Tonics. —

By the term "Tone of the System", I mean a certain happy condition of the System, both in the Physical & intellectual part, approaching as much as possible to a healthy state. By the term Roborantia I mean those substances wh when either internally taken, or externally applied, increase the vigour & strength of particular parts, or the whole System without much increasing the heat of the body. Opium and Wine are Tonics, but I do not place them under that head, for they increase the heat of the skin, & the fulness & frequency of the Pulse. They are more Stimulating & less powerful, for Tonics give a more permanent robor to the System. Opium & wine belong to the class Incitantia — The more heating Tonics are the Cascarilla & Serpentaria,

do not by any means exert as durable Tonic effects as others that are less heating

By Tonics I mean not only those substances wh increase the Robor of the System, but those also wh decrease it at times. Thus for instance the Stomach is often out of order by some vegetable acid, & Columbo & Bark are useful by giving vigor to it; but on the other hand we sometimes meet with a morbid state of the Stomach, evinced by its calling for more food than it ought to take, or is fitted for its power of Assimilation, now whatever Med: is calculated to reduce this appetite to a more healthy state, shd be called Tonics, whether it be water or the Lancet — This is not the light in wh Tonics are generally considered. —

In what manner do Tonics augment the vigour of particular parts or the whole system without much increasing the heat? Professor Gregory says they exert their ef-

fects on the Muscular System. This Opera-
tion was held as far back as Linnæus —
No one believes their effects are exerted ex-
clusively on this System. They produce deci-
ded effects on the Heart & Arteries, increa-
sing their action. The effects of Tonics on
the nervous System are evident, exhileration
of the Mind &c

Tonics exert their effects on vegetables
as well as on Animals — I have found the
Saline preparations of Iron & Copper when
not too strong, to exert decided effects on Plants,
causing them to perform all their functions in
a better manner. There is one most ex-
tensive portion of the Animal System much
overlooked, I mean the Cella Cellulosa.
It is not my intention to enter into a
history of those parts — it pervades all parts
of the body, it seems to be the seat of the
life of that part called Contractility. It gives
shape & firmness to the body, & when

in order induces health; when not sufficiently tense Odema. It exists in Animals & Vegetables. We may safely assert that there is no good foundation for the Opinion that Tonics exert their effects on the muscular power exclusively. for in Vegetables or Plants we find these effects exerted, where there are neither nervous nor muscular Systems

When we consider the vast range of the Cellular Fabric, & how much the health & tone of the System depends on it; I cannot, but believe that the cellular texture is the medium thro' w^h Tonics exert their effects.

D^r Cullen says that the Tonic power of substances is chiefly the same quality w^h gives them their bitter taste — for says the Professor, I know of no other substances possessed of Tonic powers but the bitters — This is a mixture of truth & error, I agree with the Edinburgh Professor that bitters are Tonics; but that the essence of the Tonic

power does not necessarily or essentially exist in the bitter quality as he has asserted. I dissent from Dr Cullen, I will not say with diffidence, but may safely say with tenderness. — I must however adduce my reasons. —

We have mentioned that Tonics are the Roborantia of Dr Gregory, the Sorbentia of Dr Darwin, & the Musculares of Linnæus — I have hinted at the Propriety of extending the term. —

I disagree with Dr Cullen as to the essence of the Tonic power residing in the bitter quality for the following reasons —

1st. There are many articles intensely bitter which have never been shewn to possess the truly tonic power. —

2d Many of the most powerful Tonics are destitute of a bitter quality; as the preparations of Iron, the Rubigo Ferri, Cuprum Ammoniacum &c

The essence of the Tonic power then, does not reside in bitterness, as some of our most powerful Tonics are perfectly devoid of this quality; & some of our most powerful bitters possess no tonic properties. Well regulated exercise, Cold bath, Cold air, a proper regulated diet, vegetable or Animal food or a mixture of both; the regular performance of Intestinal or Urinary evacuations, may all, with propriety, be considered as Tonics. — Under this head may also be classed a life not too rigorously chaste — This Gent: I confess is a delicate subject, but certain it is that a Patients Epileptic Fits were greatly moderated by venereal indulgence, & abstinence for it increased their violence. Love, Joy, Ambition, & all the Passions are Roborants. — If Cæsar had not been elevated to that high Station in the field, I have no doubt his life wd have terminated in Epilepsy, in-

stead of perishing by the just resentment of her Country. — Joy has cured Intermittents, & we often find the expectation of seeing a beloved child, prolong life for days. — Pain is a Tonic, & that a powerful one. I have no time to pursue this interesting subject further. It is surprizing that Dr Cullen has not even glanced at it —

The Tonic & Robordnt power does not depend on any one individual quality, for all astringents are Tonics, but all Tonics are not astringents. — We have shewn that it is not attached to the bitter quality — It is likely probable that the Tonic, like the astringent property of wood: is founded on very different combinations. What these are we know not — By the Union of the bitter & astringent qualities, we form some of our most powerful tonic Medicines; in this case we can improve on Nature — As the combination of the P: Bark & Serp

pentaia Virginiensis for instance. If I could believe that the Tonic power resided in any one individual quality, I sh^d say it was the stimulating. Some of Professor Cullen's notions about bitters, are not well founded. He says they cure Intermittents & Remittents, but don't act by their Stimulating quality, & so he concludes they must act by their Tonic power. We know that every Tonic is endowed with a power of stimulating the System. The operation of Tonics is independant of Stimulus. When our Stomachs in summer are distended with flatus, water at the temperature of 48° is the best remedy. Our langour in hot weather cannot be removed by Bark, Bitters &c. but we find a change in the temperature of the air to effect it immediately. The Tone effect here, is the rapidity with which heat is absorbed from the body.

Many Med: exert great effects on the System & were you to judge of em its effect on the Heart & arteries, you wd suppose nearly inert. By the most particular attention to the Pulse when Lva Cusi is given, we can never find that it raises it more than 1 or 2 Strokes. Now we know that it exerts very stimulating effects on the Kidnies & Bladder. Bitters then increase the force of the Pulse & the circulation, if not, whence this Heat, flushing of the face, & dejected eye; & how comes it doses of Bark injudiciously administered to aggravate Intermittents?

The Gentiana Lutea is one of the finest bitters & is used in Intermittents. But the Gentiana Centaurea increases the heat of the System much more, & is more stimulating. Actual & careful experiments have established as a fact the very stimulating effects of Tonics. This has been proved by Walker, Morris, & Price of

this University. All the bitters do exert Stimulating effects on the System, & various bitters possess different degrees of this Stimulating power. All the Articles of the Materia Med: form one great series of the Excitantia, & will I anticipate in time, be all graduated to the heat of the body. —

Digitalis & the Acetate of Lead, lower the pulse very much, but this is their secondary, not primary effect. Besides the inflammation they produce prove their Stimulating effects. No medicine applied directly to the body acts as a Sedative. The effects of articles exert on the Pulse, are by no means the proper Criterion by wh to determine their Stimulus. The Stimulus of articles give is not in proportion to impressions made on the Pulse. The highly stimulating quality of vegetable bitters when long persisted in I shall mention hereafter. — They prevent the re-

currence of Paroxysms of the Gout. by raising a continual fever in the System, & thus prove beneficial. In this way Gout powders are injurious. I have said that Tonics dont belong exclusively to bitters. The bitterness in bodies is a peculiar principle different frm all others, called the bitter principle. Chymical reagents exert scarcely any effect upon the bitter principle — The Nitrate of Silver & Acetate of Lead are the only two principles wh produce any effect upon it. It is a curious fact that Chymical reagents exert scarce any effect on this Obscurum principle. Bitterness in bodies is a peculiar & individual principle. I think it a simple & indivisible quality

Our strongest bitters says Cullen, as the Columbo, are inodorous. I think the Odour is very perceptible. It is supposed that bitters do not contain volatile parts, as we dont obtain an Essential Oil frm them. Some

some of our strongest bitters are free of aromatic properties. tho' they are often combined as in the Cascarilla & Serpentaria &c. however are much more Stimulating

Before I enter upon the consideration of Individual bitters, (on &c. head I shall speak not only of the simple pure bitters, but those also &c. have some portion of Astringency) I shall speak of the Diseases in &c. they are employed.

Diseases in &c. Bitters are employed

Bitters are employed both internally & externally. They are used in cleansing foul ulcers. As they possess an Antiseptic Quality, so it has been suggested that they are useful in checking Gangrene. Those cases however &c. are attended with an increased action of the Heart & Arteries must be injured by them.

Their good effects in Gangrene must be independant of any Antiseptic quality. They have been recommended in discussing Tumours

& Cullen says in cases where the skin is entire, the more pure bitters &c have no volatile parts can hardly be of much service. Their absorption is not necessary to produce any good effects whatever. One of the most obvious effects of bitters is to promote the appetite & digestion, says Dr Cullen - it is certain that a very great number of them do, but I don't believe as he does that their functions depend on the tone of the muscular fibres, & that it is performed as in Animals &c have gizzards - Now we all know that the Gastric juice is the agent by means of &c this important process is carried on, & that the muscular fibres are of but little use - they only assist in propelling its Contents. We all know that Dyspepsia is owing to the bad quality, or too small quantity of the Gastric juice &c is secreted. Darwin says that Bitter medicines promote digestion by causing an absorption of Chyle - I think bitters promote

digestion by Stimulating the vessels of the Stomach to secrete the Gastric juice in a sufficient quantity & of a proper quality. Pepper & increase the appetite in this way.

Visceral Obstructions. Here Dr Cullen says, he has never found them useful. In many cases they must be injurious, for Dyspepsia arises fr different Causes, & consequently our treatment must be varied. Where Dyspepsia exists in Sedentary habits, & the Intestinal Canal is in a weak relaxed & Torpid State, we shall no doubt find them useful.

Chamomile & Bark often Purge, & we know that a purgative quality belongs to astringent bitters. Bitters say, Dr Cullen increases the flow of urine, as Stimulants no doubt they do, for all Stimulants produce that effect. The Artichoke, Lactuca & Digitalis, Squill & Opium are all Bitters. A Diuretic property belongs to a great majority of Plants

Dropsy. Bitters alone are not proper in this Complaint. In combination with alkaline salts, they exert a very considerable effect. Physicians in prescribing Diuretics in Dropsies, have too much omitted the exhibition of Tonics

Intermittent Fevers. Bitters have been used with advantage here in preventing the recurrence of the Intermittent Paroxysms. Bergius found the common bitter almond to have that effect after the Bark had failed. —

Continued Fevers. We find Bitters recommended in Continued Fevers. In their first & more febrile state, bitters, & particularly the Aromatic must be injurious — They are certainly too stimulating. In this City bitter teas have done much injury by being prescribed before V.S. & Purging have been used. I wd not hesitate to advise them after the fulness & tension of the Pulse had been reduced.

We all know what a rage there was for Chamomile & Centaury in the Y: Fever of

1793 - After plentiful evacuations they were no doubt useful. I believe Aromatic Bitters to be useful in the 2d Stage of Typhus Fever. All our fevers at present are called Continued, are improperly named, for they are all Remittent. —

Rickets. Bitters have been used in this Complaint as a preventative, & as a cure. I have no experience however on this Subject. In the earliest commencement they may do good by their tonic quality; but after the absorbents have begun to seperate the bones from their earthy Basis, no tonic on earth will effect a cure. Bitters as Stimulants are Sudorifics. All the Bitters are purgative & their property of stimulating the intestines is very striking. —

As Emmenagogues - As Stimulants & Tonics, so may also bitters prove Emmenagogues - But they possess no Specific property.

In Febris Alba or Chlorosis (for Dr -

with you to substitute the term Febris Alba for Chlorosis. Some Physicians have mistaken & confounded it with Leucorrhoea, but they are distinct diseases. In Febris Alba, no Practitioner has ever used bitters but with advantage. They are generally combined with Steel; but if used alone & long persisted in they are competent to the Cure, particularly if connected with exercise, & proper diet. — I have found malt liquors very useful. —

Anthelmintic Qualities. Of the Anthelmintic qualities of Bitters, I shall speak hereafter; they are most decidedly entitled to our attention. Worms live in strong infusions of bitter substances. —

Under this head I formerly treated of Gout & Calculus. They are more nearly allied than is generally supposed, for half the Cases of Calculi we meet with, we find existing in Gouty families. Bitter Med: at

times are good. —

Bitters were long supposed to possess a Narcotic Quality. Haller has often spoken of it & alluded to the Gentian; for its smell he thot it poisonous & Also the Hydrastis & Frasera — this smell is perceptible. — Cullen thinks there is something deleterious in all bitters. Bitters injure the tone of the system only by repetition. Almost all bitters, particularly the vegetable, possess some Tonic power & little astringency. Professor Gregory says they are too often employed with a view of imparting Tonic effects. —

Mr Lindsay in the 3d Vol: of the Philosophical Transactions says the red Bark in large doses produces Anxiety, giddiness, & many other bad symptoms. This only happens in particular constitutions & weakly habits. All the Anomalous effects produced by Bark, are for the red Bark — the Resp: and Vomiting &c occur for the use of the other

Barks is aggravated by the Red. It appears that there is something deleterious in the Red Bark. As to its producing stricture and tightness in the Chest, that I think must arise from some peculiarity in the constitution. Mr Edward Lisle says, A took away the use of his hands – Many bitters are endowed with a noxious or narcotic Quality – We find it in Opium, Lactuca, Ignatia, the Lactescent Vegetables, Garden Lettuce. The common bitter almond is said to give the Skin an Erysipelatous affection. This noxious quality is perhaps out of 10,000 people not communicated to more than 4 or 5. Calcareous earth has done the same thing. This Noxious or Narcotic Quality is not necessarily attached to Bitterness, for in Opium we find all the bitterness residing in the Gum, & all the activity in the Resin. The Gummy bitter part is inert. I am intimate with a Gent:

in this City in whom a glass of punch produced deafness - this arises from an Idiosyncrasy, & we can hardly infer from that that punch is destructive to the Organs of hearing.

The experiments in Sweden have shewn that bitters are not necessarily deleterious or narcotic. We sometimes however find poison & bitterness intimately connected

I am disposed to treat of bitters somewhat as Professor Cullen has done, that is, beginning with the purest bitters, those that have least astringency in them, then treating of those that have some portion of astringency united, as in the Bark, & lastly I shall mention astringents

Gentiana. —

Many species of Gentians are well known. They are very pure bitters. I observed they are all bitters (& all astringents)

& all Stimulants so much so that it was unsafe to employ them in intermittents during the existence of inflammatory fever. Their properties cannot be increased by their stimulating powers.

Gentiana Lutea.

This is found in the Old world, & not in America, the root is several feet long. This plant Haller supposed to be deleterious. It is a most valuable Article, & nearly equal if not superior to the Quassia. for it is less nauseating & Heating. Water & Spt. wine extract its Virtues; the former in a greater proportion. It is said to possess Antiseptic Qualities, as it retards the fermentation of Bread. Many Virtues have been ascribed to it. It is recommended in debility of the Stomach & Intestines. It excites the appetite & promotes digestion &c are qualities common to all Bitters. It is used

in Nervous Complaints, & is said to dissolve Phlegm. Dr Whytt says it effected a cure in a man who had been troubled with a Stomach complaint for 15 years.—

Dr Murray thinks that the nervous menstruum shd be combined with some agreeable aromatic

Stomachic Elixir of Rosemine

Fresh Orange peel Bruised — ℥vi
Extract of Gentian — — — — ℥ß
Port Wine — — — — — Oij. Mix digest & filther — Dose a Tablespoonful.—

Whytts Formula

Peruv Bark — — — ℥iv
Gentian — — — ℥iß
Orange Peel — — — ℥iß
French Brandy — Oiv. A Tablespoonful of this mixture to 5 or 6 ℥ss water the dose. It was given in Hysteria Hypochondriasis &c

The Yellow Gentian is used in preven-

ting paroxysms of Gout. It forms an ingredient in Portlands Gout Powder.

Linnaeus says it is useful in Calculus Cases. Some writers say its Febrifuge virtues are equal to those of Peruv Bark.

Dr Lind says 5ss to 3ij will remove an Intermittent Fever. Lenach says he found it injurious. I generally use the powdered root in Substance, as it is safer than the infusion or Tincture. As a Tonic our Medicine ranks high, & with the Columbo we find it recommended in Visceral obstructions. It has been used in Scrophula & no doubt is of service. Gentian in Combination with other Bitters has been used in Worms. Murray says it gives tone to the Intestines. Probably it proves Anthelmintic by its purgative quality, or by acting as a Poison to the worms. Houlstons Elixir so much celebrated is the Tinctura Amara of the Edinburgh Dispensatory. —

Frasera Officinalis.

This is closely allied to the Gentian in its Medical properties. It is a new acquisition to the Mat: Med: I spoke of it first in 1797. It grows in the State of N. York, Kentucky & Ohio. It is nearly allied to the Columbo in its properties, & many Specimens have been brot me for the Columbo. It is an intense bitter possessing little astringent properties, & gives out a strong smell. It is little inferior to Columbo. The tree is 4 or 5 feet high, the root large & Tuberous. Apothecaries might be easily imposed upon & purchase it for Columbo, as they often send it to the Physicians for that article. This plant shd be taken up when the leaves begin to die, & when there is a similar disposition in the stem. —

Dr Cullen has thrown together bitters of the most opposite properties. I arrange them accordg to their affinities. ——

Gentiana Centaurium,

or lesser Centaury. This is a native of Europe & of the U States. That wch is cultivated in this City is of a different Species. The Stalk & leaves are unploded, the blossoms are nearly insipid. The plant has a bitter taste. Both water & Spirit wine extract its virtues but the last in a greater degree. Water also extracts its Mucilage. As it is a native of many Countries, it has been preferred to Gentiana Lutea by Murray & others. He says it is not less Antiseptic. Cullen justly shews that it is inferior. Ziij boiled in a suitable portion of water Purges. It has been celebrated as a Febrifuge. Strabonus says he has cured Quartans with it. Senac found it to occasion too much heat In all ages it has been used in Gout. How far it is useful you may conjecture from what I have said on that Subject.

Jaundice This disease sometimes

depends on a Torpor of the Alimentary Canal, independant of the obstruction of the Biliary Ducts - Here it is certainly proper. On this subject however I have no experience

Our own country poseses many Gentians not yet known. In this State, New Jersey, Virginia & Carolina, there is a Gentian with Narrow leaves. It is a very pure bitter. It grows in the maritime parts of these States. — It is said to posess Narcotic Qualities. —

Chironea Angularis.

This is as valuable as the Centaury just spoken of. It is very common in the U. States. Every part of it is intensely bitter, in so it differs from the Lesser Centaury, as the blossoms of that are nearly insipid. It is called Centaury in our Markets. —

Quassia

Of this we have 3 species The Quassia Amara, Quassia Simarouba; & Quassia Polygama — The first species was called after a Negro. —

Quassia Amara. —

The tree is of a Moderate Stature. It grows in Surinam, S America, & Santa Cruz. It is said to be destitute of smell, the odour however is very perceptible to me. Its bitter is intense, & prevades every part of the plant, the seeds not excepted. The bark of the root, the blossoms & seeds are the parts most bitter. Physicians generally throw away the Bark &c I think is the best part It will impregnate 4 gallons of water with its bitterness. —

As a bitter, it is inferior to the Yellow Gentian when wild, & to the Colycinth apple. It is said to be Antiseptic, & to prevent the pu-

† in Hysteria

tisaction of the bile. It first acquired its Celebrity by curing obstinate & dangerous remittents in Surinam. The Black Dr. Quassi just used it before it was known to the regular Physicians. In 1756 Rolando a pupil of Linnaeus purchased the secret, & it was thus returned to the world.

In Continued Fevers. Quassia has been employed here; it does not increase the heat of the body as much as the Bark. Monro used the powdered root in Fevers, & in combination with Serpentaria.

℞ Pulv Cort Quassia — ℥iv
Aq Font: ——— ℥ij
Brandy ——— ℥ij

This formula has been recommended in cases of Swellings & Dropsies.

Dr Lettsome used the Pulv: wood of Quassia; he remarks that in relaxed, nervous, debilitated habits succeed[s] febrile diseases, Bark is the best; but in Hysteria for that cause

× greatly

Quassia shd be used. His formula like many of the London prescriptions is too long — simplicity shd be aimed at in all our prescriptions. —

Our author recommends Quassia in Epileptic Hysteria, & Hysteria from nervous debility

In Gout. In Hereditary Gout, Quassia is said to be inefficacious — this I think probable. Wallman & Bergius recommend it — their authority is high

In Calculus. We are told it is highly advantageous here, & generally moderated the Paroxysms in a man who used it. — this much is doing a great deal in this formidable disease. But I fear in this, as well as in Gout — Quassia is entitled to but a small part of the praise it has acquired. It may be as good as other bitters.

In Dyspepsia. Quassia comes recommended here by Haller, when long continued it

is beneficial in some cases. —

In Diarrhea. Our medicine is proper here either combined or uncombined with Opium. It appears particularly adapted to that kind of Complaint where the Patient is one day costive, & the next purged. It is proper here in giving a tone to the Stomach. I have used the Columbo & the Quassia, & am getting much attached to them. — In Dyspepsia, I have often used the Quassia, & generally administered it in a watery infusion, as the patient complains less of it, & it may be continued longer without disadvantage.

Quassia Polygama.

It grows in Jamaica, the tree is tall. Except the pulpy fruit, all of it is bitter. — Lyn used it in Ague, Remittents & Dysenteries. In Dropsies of Jamaica attended with debility, it has been used advantageously

Dr Drummond says he has employed it with much success in Amenorrhoea, Febris Alba, Pica, or the Vitiated appetite. The Patient in this last disease will not eat common aliment, & seeks for worse dirt &c In the Vitiated appetite we find girls at times prefer, Tonic Med: are proper, & no doubt this also. It is an intense bitter. The dose is from 15 grs to ℈j. It is used either in powder or infusion. —

Quassia Simaruba. —

This species of Quassia grows in Cayenne, St Domingo &c It is the growth of a large tree, & is called the mountain Damson. In the Bark, no astringent principle can be found, consequently it is a pure & simple bitter. Water & spt to Wine extract its virtues — & cold more than hot water.

In 1710 & 1723, a Dysentery prevailed in France, & refused to yield to all the

common remedies, & was at length subdued by this species of Dyspepsia. In the early stages of Dysentery, this like the other Tonics must be injurious but in the 3° Stage, when all the Febrile Symptoms have disappeared, it must be beneficial —

Pringle & Hasham prescribed it. —

Lind says when it produces Nausea, it is more efficacious - Monro has often used it after the bowels are cleansed, & thinks it valuable. — When for Dysentery. the intestines become ulcerated, the decoction combined with Laud: is a very useful medicine. Dr R: says in Cold Sweats attended with dejection, it is excellent. Dr Haen says it is a good vermifuge, but I have no experience on this head. —

Columbo. —

This is a most important article indeed. Franciscus Rani as early as 1655 mentioned it. — It is very remarkable that the vegetable of wt. Columbo is the root has not been with certainty discovered. It is a native of the Continent of Asia, & was translated to Columbo a city of Ceylon. It is the root of a Herbaceous plant. Formerly thot it a species of the same Genus with the Frasera or Gentian — I have received a communication fm Dr Roxborough, who informs me that he has discovered it to be a species of Menispermum, & a native of Africa. It has a strong agreeable, bitter, pungent taste, & its smell is Aromatic. Spt. wine extract its virtues in a greater degree than water, consequently its virtues reside in the resin. Bark possesses more Antiseptic qualities than Columbo, at least it keeps the beef longer sweet. Dr Percival was the

first who gave any particular acct of it, & he ascribes to it the power of changing the acrimony, or correcting the Putrescency of the Bile. Dr Cullen very properly supposes that it has no Specific action in this respect, but acts as other bitters do. Dr Percival made but one experiment. He gave a man ℈j of Columbo, no effect was produced on the System — he increased the dose to ℈ß, & in 10 minutes his Pulse was fuller & slower: so says he it is not heating. It is no doubt less heating, & stimulating than some other Med: as the Serpentaria. Dr Bill says the Columbo does not stimulate the Sanguiferous System: but we know that both the Columbo & the Gentian do. In its exhibition in Intermittents or Remittents, we are obliged to pay the same attention to the Pulse, as if we were giving Bark, with this difference that the Columbo & Gentian are less stimulating than the

Bark, & consequently less injurious. Columbo has been used in many different diseases, & as its tonic powers are great, we find it very beneficial in Intermittents I have at least used it with success. Writers say it is Competent to the cure of Intermittents, to ∧ the Peruv: Bark is inadequate. Columbo appears adapted to particular cases, such as where chills are succeeded by a Fever not very violent, and where the Constitution is delicate. Columbo effected a cure of Intermittent Fever in Mr Rittenhouse when the Bark had failed, for it wd not agree with him, & the Columbo sat easy on his Stomach. —

In Pulmonary Hectic Fever, I have used the Columbo with evident advantage. I gave it in a watery infusion. Attention to the Pulse is requisite, as it shd be exhibited in the Apyrexia, for if given in the Paroxysm, it will increase the

disease. —

Dyspepsia. In this complaint it is one of our most important Tonics. It shd be given in Substance, in large doses & long continued — In substance it is less nauseous, is more powerful & better. I have used it with much success in combination with Subigo Ferri. —

In Dysentery. Columbo is recommended in this complaint by Percival — he observes it may be frequently administered with advantage when astringents wd be injurious. — It is useful in the decline of the Complaint. — Cullen says it is not much used in England. It is employed in France & Holland but not much in the U. States. It is certainly not adapted to the early stages, but an infusion is highly beneficial in the griping & Tenesmus accompanied by Debility.

In Diseases of the Stomach & Bowels it

x Johnson used it beneficially for this purpose

is used by the Natives. The British Practitioners adopted this for the natives of the W Indies —

In Cholera Morbus. It is beneficial here & stops the vomiting. & He gave it in large doses from 1 to 3 or 4 ℈. — Donald Monro recommends it in the vomiting wch attends the Bilious Colic Percival highly recommends it — he gave it in doses of 15 grs combined with Vetr: Tart: The dose shd be regulated by the condition of the System, & age of the Patient V or VI grs twice or thrice a day to an adult. —

In Dyspepsia the dose may be increased: & in Intermittents we may give it from 10 grs to ℈ß. I have used it chiefly in Substance. To the Spirituous Menstruum it gives out more Virtues than to the watery

Tincture

℞ Pulv Rad Columbo — ℈iiß
Proof Spirit — — ℔ij Digest & make a Tinct. —

To those Gent: who intend visiting the E Indies, I wd recommend the Columbo to their particular attention in this Complaint. ~~

Lichen Islandicus, or

Iceland Liverwort. This plant is Mucilaginous. When deprived of its bitter Qualities it yields a nutritious mucilaginous substance. ℥j boiled in ℥j of water yields much mucilage. It is considerably bitter. The inhabitants of Iceland seperate its bitter fm the farinaceous part by maceration in water. There adheres to its mucilaginous quality, a small portion of Astringency along with the bitter. It is absorbed into the course of the Circulation, for it has been seen in the Milk of Nurses. It is much used in Europe & the U States. The Lichen has been recommen-

ded at Vienna in the Consumption of the Lungs. Bergius recommends it here boiled in Milk - he boiled the moss in Milk to a Porige, & let the Patient feed on it. It is said to cure Hemoptysis In Inflammatory P: Consumpt^n it is not so good as in the Debilitated. In Consumptions of general debility, it acts by virtue of its Tonic Power. Great virtue has been ascribed to it in Correcting the Cough, Spitting &c - It must act by its mucilage filling the Bloodvessels for it has no Specific action. - It has been recommended in Ulcers of the Kidnies & Uterus, in Diarrhoa & Dysentery - this is unimportant

I can hardly doubt the numerous & respectable authorities (& as Lord Bacon says authorities are facts) of those who advise it in P: Consumpt^n - It may cure it by its nutritious qualities, for diet in this disease is of the utmost importance, &

many lives have been saved. I believe, by a vegetable diet. A Physician here that used with great success small nauseating doses of Ipecac: & a vegetable diet. This last I rather think ensured his success. Consumption may receive relief from the mucilage of the Lichen, for a portion of its good effects must be ascribed to its mild mucilage. We often find the light Tonic plan successful in Consumption & this the Lichen also combines; a part of its effects must be ascribed to its Tonic bitter qualities. No other med: has the Tonic & mucilaginous qualities combined. D^r Lyons of Richmond advises its use. I have myself no experience of it. It is expensive altho it grows plentifully in the Northern countries of Europe, & is common on our Northern lakes.

Humulus Lupulus.

or Common Hop. It is not a very pure bitter - the flowers are Odourous & Aromatic. Its use in Malt liquors is known to you all. —

Medical Properties. We know less of these than we ought. It has been too hastily concluded to possess the same as other aromatic bitters. Dr Lobe among others has ascribed Lithontriptic properties to the Hop. Mr Ray says since Malt liquors have been freely used in London we find few Calculus cases. The Hop was introduced into the English Breweries about the 17th Century, & long after that we hear Sydenham remarking the number of Calculous cases in London. Simpricianus says out of 14,000 people who died for the stone the greater number were wine, not ale drinkers

Dr Dobson supposes that the fixed air

in Ale or Porter prevents the formation of Calculus. In London where Porter was my drink, I was much troubled with Nephritic pains, & I rather suppose that malt liquors dispose to the formation of Calculus. — The Hop holds a high rank among the class of Tonics. An infusion of the flower of the Hop has been used in various diseases of debility; in Chlorosis, Dyspepsia &c

The Hop appears peculiarly adapted to that debility of the Stomach wh attends the intemperate use of liquors. In the low States of Typhus, Porter is better than wine. Ale drinkers are always the most grovelling people. — The Hop is endued with narcotic properties. Dr Willis prescribed a Hop pillow for George 3d. Linnæus first spoke of the Anodyne qualities of the Hop. The Tincture prepared from the flowers of the hop is possessed of Anodyne qualities, & is entitled to our attention. —

Formula of the Tincture
Of the best Picked hops — Zivss
Rectified Spt. Wine —— Zij This
mixture shd be kept at the temp: of 90 or
100 degrees for several days, being frequently
agitated, & afterwards decant it. — It is an
excellent substitute for Laud: I have both
given & taken it — 70 drops are equal to 20
drops of Laud: — It agrees with many
with whom Laud: will not. —

A Lady of delicate habit who was una-
ble to take Laud, fm the violent affections
of the head wh it produced, never was af-
fected by this Tincture. —

Menyanthes. —

Trifolium Palludosum, Marsh Trefoil, or
Buck Bean. — This is a native of several
countries of Europe, & grows in the U States.
It has been much celebrated in Gout. There
is no acrimony in its taste & smell. It

strikes a black colour with the Sulphate or Oxysulphate of Iron. Water & Spt vini extract its virtues — fm ℥ß to ℥ij purge & vomit — Alston says it had the effect of keeping off the Gout. Ashine wrote on its good effects, he says all his Patients were Peasants he gave the recent expressed juice, it can be had only once a year. A watery infusion of the dried leaves can be had at all times & is very good. It is also said to be a Lithontriptic. All the Bitters are recommended in Nephritic Cases. Bergius has advised it in Asthma — I have never employed it. It has been used in Nephritic Autumnal Fevers. —

Centaurium Benedictus

Cardeus Benedictus, or Blessed Thistle. —

It is a native of Spain & other countries It is cultivated in our gardens, & much esteemed by our old women. It is a pure

bitter. An infusion of cold water ~~extracts~~ its virtues best. It has been used externally in Cancers. We find it recommended in the Plague & Intermittents. It assists the Operation of Emetics. Antiseptic powers have been ascribed to it. —

Fumaria Officinalis,

or Common Fumatory. This is the common Fumatory of the English. It is a native of many Countries in Europe, & will be so here. The inspissated juice of the plant is used. A Saline matter effloresces ~~from~~ it & decrepitates like Nitre. It is bitter & Laxative. Hoffman says it is a Sweetener of the blood. — It has been used in Lepra. Thompson gave it in 3 or 4 tablespoonfuls. It appears to be a native. I recommend it to your notice. It is Purgative & Diuretic, & nearly allied to the Seneka Snake root. —

The Hydrastis & Xanthorisa

See the 2d Vol of my Collections. Xanthorisa is commonly called Parsley leaved Yellow root, in contra distinction to the Hydrastis Canadensis, it is simply called Yellow root. —

Helleborus Trifolius or

Golden Thread. It is nearly allied to Fumatory — It is a strong & agreable bitter — I have employed it, It possesses the same virtues as other Bitters, & some peculiar to itself. It is benefical in those opthous affections of the mouth &c — affect River Rafters on the Delaware & Susquehana. Percival recommends it in Intermittents — a decoction is the best form of using it

Rhubarb.

This is an excellent Bitter Tonic. In some cases it is preferable to any bitter — as it keeps the bowels open. ———

Guy Nicker.

This has solicited much attention in G. Britain & the W. Indies. The kernel or farinaceous part of the seeds is employed. It has been lately recommended by Dr Neil in chronic weakness, Chlorosis & weakness of the Genital Organs. —

Anthemis Nobilis —

Chamomelum or Chamomile. This is a native of G. Britain & other countries. — The leaves & flowers have a grateful smell, & affords an essential oil. The flowers are employed in complaints of the Stomach both in powder & infusion. It was used in Intermittents before the discovery of the Peruv: Bark. Mortan spoke of its effects in the 15th Century. — When large quantities are taken, it runs off by stool, & we are often obliged to combine Opium with it. Bergius used it in Intermittents. It is said to be an Antidote to

the Colic, & to prevent the Gripes in Dysentery
It has a power of moving the Intestines.

Tanacetum Vulgare, or

Tansey. This is a powerfull bitter; & has a strong, bitter, but not disagreeable taste. It was brot into notice as a valuable remedy for gout. Dr Blair of Edinburgh strongly recommends it. It is at times Diuretic, & at others Cathartic. Dr Garden used it for a length of time, & found it rather an innocent than active med: Hoffman ascribes Anthelmintic powers to it. The Saxons Rosemine had a great opinion of it. Like all other Bitters, it has been advised in Intermittents. —

Artemisia Absynthium

Absynthium Vulgare — Common Wormwood.
This is an intense Bitter, it furnishes

us with a striking instance of what I said on milk, for it imparts bitterness to the milk of Cows & the flesh of sheep that feed on it. The leaves are more powerful than the flowers. It is said to possess narcotic qualities - Lind says he could not taste the extract without suffering pain in his head, & redness in his eyes - this must be owing to some Idiosyncrasy of Constitution. Linnaeus informs us that Wormwood has been taken for 6 months together without any deleterious effects. - When it was customary to drink Purl, that is, ale in wh wormwood was infused, the ale thus prepared is said to have been more intoxicating than ale of any other kind. This has been improperly ascribed to its volatile parts, for when deprived of its essential oil, this Oil has no bitterness. I do not assert that it has not a noxious quality.

In Intermittents, the juice of the recent plant in a dose of about half a tablespoon-

ful mixed with some aromatic, as Cloves has been found very beneficial. One writer asserts that he cured an Intermittent with it, wh had resisted the Bark. Haller says that the use of the Wormwood never produced any effects on him. A man who took wormwood & wine was affected with heated urine, & a running similar to Gonorrhea. When he suspended the use of this Med: these affections were checked, & vice versa. The Gout in this case was translated to the bladder. —

Aristilochia Longa.

It is of the same Genus with the Aristolochia Serpentaria. It is a Native of the Southern parts of Europe, & is bitter & acrimonious. The root wh is the part employed, gave the plant its name, on the supposition that it was an Emmenagogue. These Emen-

agogue virtues have been ascribed to it since the time of Hippocrates. Cullen found it useful in the Chlorosis & Retentia, but inefficacious in the suppression of the Catamenia. This is one of the bitter medicines so much celebrated in Gout by Haller & others. It is one of the principal ingredients in the famous portland powder

Formula of the Powder

Pulv Rad: Aristolochia
Tops of the Gentian
Leaves of the Teucrum Chamaepitys, &
Leaves of the Centaury — Equal parts. —
To be made into a powder & well mixed. ℥j to be taken every morning in wine & well mixed continued for 3 Months — In 3 Months diminish ⅓ of the Med: — In 6 months give only ℥ß; & in 6 Months more give only ℥ß every other day. It will be two years before the Patient experiences its good or bad effects. It operates just as wine or Brandy —

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I shall not treat of the Portland powder. It has as you may conceive been very injurious. It receives its name from one of the Dukes of Portland in whom it prevented the Paroxysm of Gout — He divulged its composition says Murray to the great injury of the world — for out of 50 or 60 persons who took this powder, every one died the same year. — The Portland Powder however altho' injurious, has not done all that mischief that has been ascribed to it. Boerhaave says if its use has been long continued, it destroys the bilious coat of the Intestines. One of my reasons for supposing that the Portland powder is not so Mischevious as has been represented is, that altho' the Gout is very Common in the U States, it has never been used here, I still that complaint has I believe as often terminated fatally in Apoplexy, Hydrothorax &c as it has ever done in G: Britain

Aristolochia Serpentaria.

Serpentaria Virginiensis, or Virginia Snake root.

The plant called Snake root is very different, so is the Black Snake root, the Polygala, & the Spiglia Marylandica, with all of wh. it has been confounded in this Country. The Virginia Snake root is peculiar to this Country. It is allied in most of its qualities to the Aristolochia Longa. It is a bitter with an Aromatic principle. — It possesses gummy & resinous principles. — According to the experiments of Sir Jn.o Pringle, it is an antiseptic out of the body. It possesses but little astringency, & possesses little or no essential Oil. It possesses very considerable tonic powers, & is much more stimulating than the Bark. This plant forms a striking objection to Dr. Cullens assertion that Tonics are not Stimulants. It raises the pulse when it can be raised, consequently it sh.d be used

with great Circumspection. In the 3d stage of Typhus it is very beneficial. Single gave it in substance fm Dij to Zj. Its stimulating powers are great. Dr Hillary used it in Putrid or Yellow Fevers, after the Pulse had sunk & abated. It is also employed in the Plague by Dr M-- Sydenham employed it with the greatest advantage in Intermittents. It increases the powers of the Bark, I I lay it down as an Axiom, that in all cases of continued fever where Bark or Wine may be used, the Serpentaria is better than the Bark alone. It is best adapted to those cases where a Typhoid Form, & is more stimulating than Bark. In 1749 & -53, a Putrid Pleurisy as it was called, prevailed in Bristol & was confined to particular limited spots within 4 Miles round, it did not extend to Burlington. It was in the Month of Novr & there was genuine Carbuncles such as accompany

the Plague. The Pulse was at first very full, but after the smallest depletion, A swelling almost immediately – after the Virginia Snake root was administered fainted died. It was given until it produced Nausea & Diaphoresis. – It occurs in Open winters, in Marshy Countries, & most in Males & Adults. It is a disease in wh much caution is necessary for the Pulse is a treacherous guide. It is seldom proper to Bleed, wh the Pulse seems to indicate. –

Formula of the Tinct. Serpentaria

Radix Serpentaria — ℥ij
Proof Spirit ——— ℥32 Form Tincture. Dose ℥ß. —

Nux Vomica I formerly treated of here, but shall not now

Eleutheria or Cascarilla.

This is a native of Jamaica, the Bahama Islands & Georgia. Its bark is bitter & united with an Aromatic Acrimony, as the Serpentaria - It leaves a durable impression of heat in the Mouth, & gives out a fragrant Smell; & it induces intoxication. It was employed in the 17th Century in Remitting, Intermitting & Continues Fevers. The followers of Stahl being opposed to the Peruv: Bark, substituted this. As a Tonic it is inferior to the P: Bark, tho' well entitled to our attention. It has cured Intermittents accompanied with Petechial Spots, & has been recommended in Hoemoptysis. We find it to have been highly beneficial in the Intermittents of the Western Country in 1805. It enhances the virtues of the P: Bark by combination. In active Hoemoptysis, it must be injurious

Orange Peel

It possesses the common virtues of other Bitters. It gives out a bitter Oil of an agreeable Aromatic Odour; & this Oil it is said gives it its peculiar virtues, tho this is not yet well ascertained. —

In Intermittents & Quartans .... says it is equal or superior to P. Bark. — Wilbock cured two cases of Quartans by it he gave ℥j every two hours. The leaves were much celebrated some years ago in Convulsive affections, & even in Epilepsy. It has been employed in Colica Pictonum. — D' Haen used the leaves. In general Epilepsy it has no pretentions. — It is good in Chorea, & I think Johnson chewed it for that purpose. —

Arnica Montana, or

German Leopards Bane. If we were to believe all that Physicians have said about this, we shd suppose it an Universal Specific. It is an acrid bitter Plant, & grows in the Northern parts of Europe, Bohemia & Saxony: It is Emetic, Diuretic & Cathartic, & is said to dissolve Coagulated Blood - Hence it is given in Contusions - It is recommended in Paralytic & Spasmodic cases, as it acts upon the Sensorium Commune & the whole nervous System - Evacuations were first prescribed. It was given in a dose of ℈j or ij in water, or made into an Electuary with Honey. The flowers are used. —

When employed in intermittents, its use is said never to be followed by Visceral obstructions. Bergius says he used the flowers & roots without any effect. De Haen very strongly recommends it in Dysentery, Diarrhoea & Consumption Baltimore is the on-

by place in Mr. It is used in the U States
Ittim. It is a Medicine of very Consid-
erable Powers.

We come next to the Peruvian
Bark

~~10882~~ 51378

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Class 10a No. 10

Presented by

Mr. Hugh Lenox Hodge